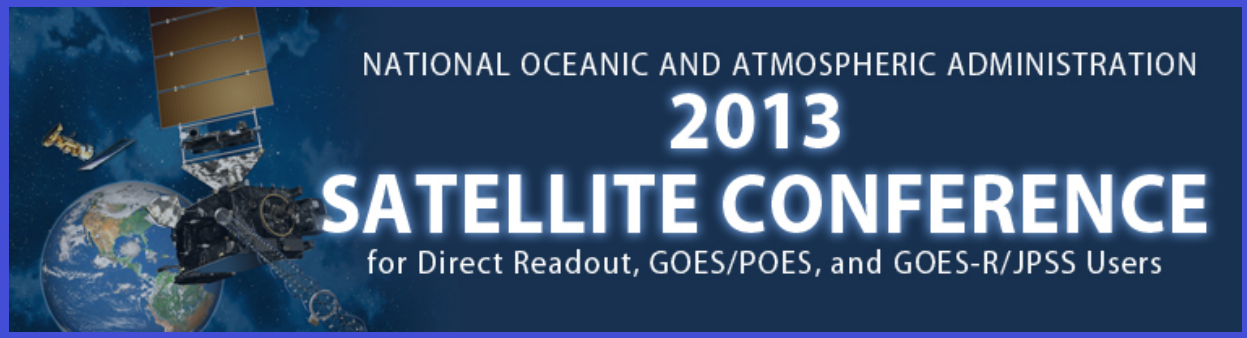


Poster Preview

Timothy J. Schmit (tim.j.schmit@noaa.gov)

NOAA/NESDIS/Satellite Applications and Research

Advanced Satellite Products Branch (ASPB)

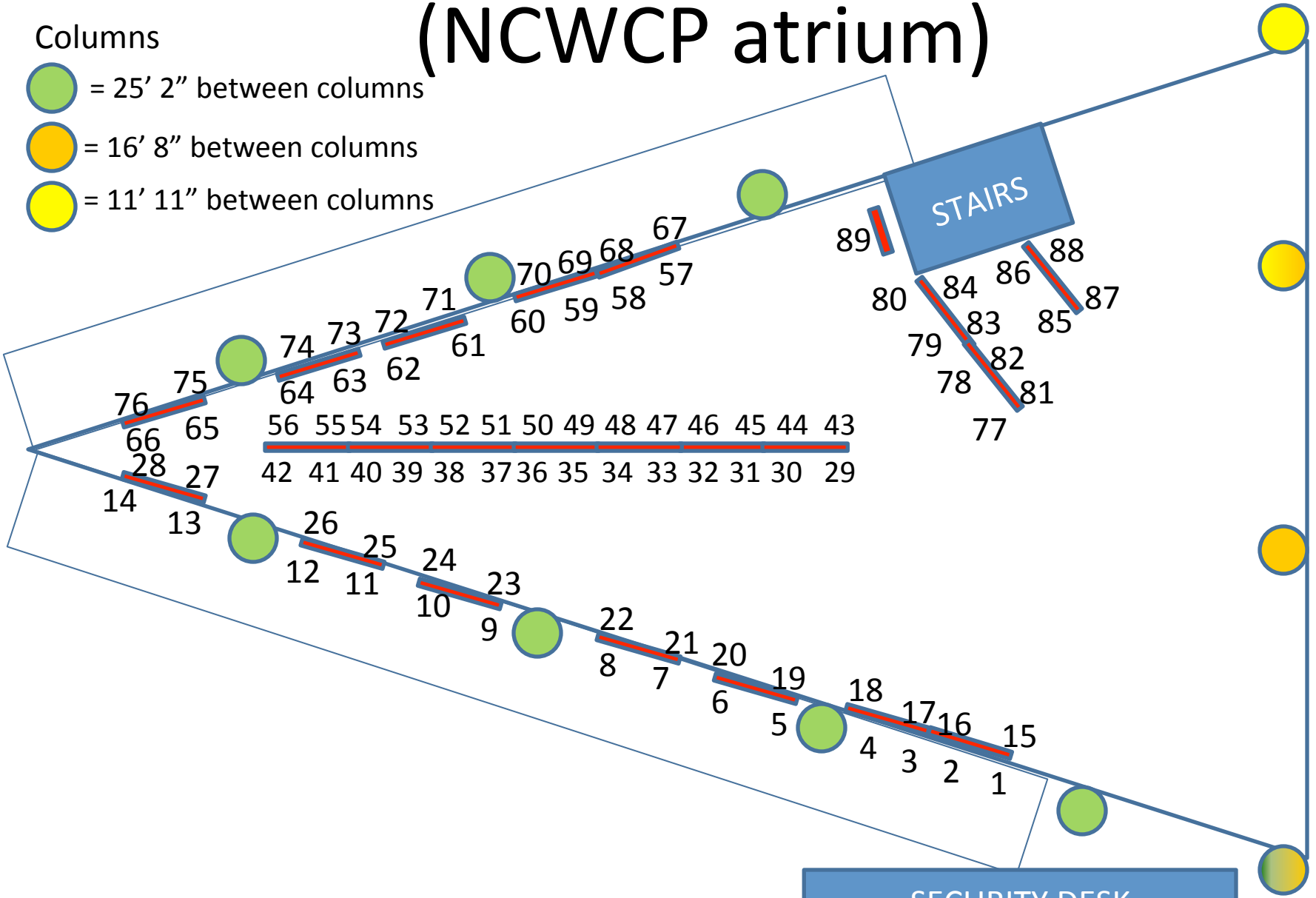
Madison, WI

Thanks to all the poster presenters!

2013 NOAA Satellite Conference
College Park, MD

April 9, 2013

NSC-2013 Poster Plan (Final) (NCWCP atrium)



GOES-R Program Calibration and Validation

Robert A. Iacovazzi, Jr. (1)*, Edward C. Grigsby (1), Steve Goodman (2), Changyong Cao (3), Jaime Daniels (3), and Kathleen McIntyre (1)

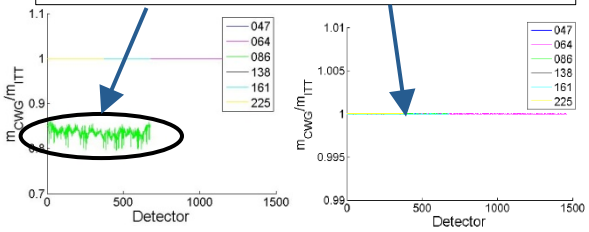
NASA (1), NOAA/NESDIS/GOES-R (2), and NOAA/NESDIS/STAR (3)

***E-mail**-Robert.A.Iacovazzi@nasa.gov* ***Physical Address** - NASA GSFC, Code 410.0, 8800 Greenbelt Rd, Greenbelt, MD 20771*

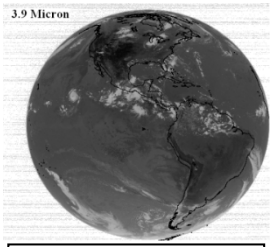
Focus on GOES-R Instrument Calibration/ Validation (Cal/Val) and L1b Product Val

- Pre-launch Cal/Val
  - Vendor instrument calibration testing
  - Government team validation of testing results
  - L1b algorithm design and implementation
- Post-Launch Testing (PLT) Cal/Val
  - GOES-R observatory cal/val assets
  - Product quality evaluation
  - On-board calibration system evaluation
  - On-orbit calibration and L1b product anomaly resolution

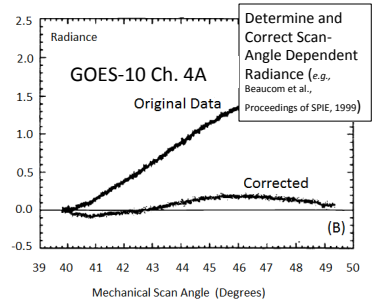
Before (left) and after (right) Government-Vendor reconciliation of scan mirror reflectance value used in ABI test data analysis.

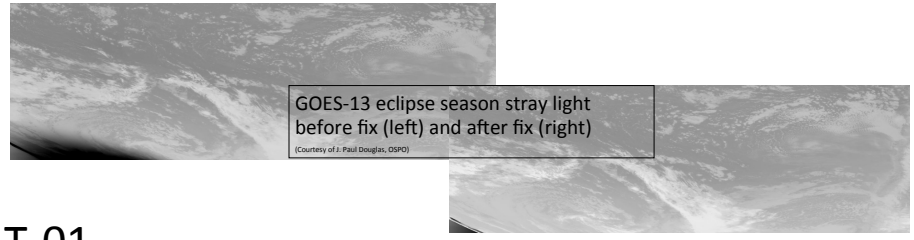


Example comparison between GOES-R CWG and Vendor cal test analyses: Ratio of CWG to Exelis cal coefficients for ABI reflective channels.



GOES-13 Hemispheric Image Tiles

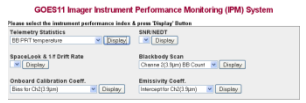


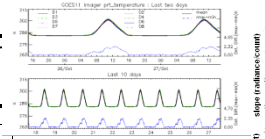


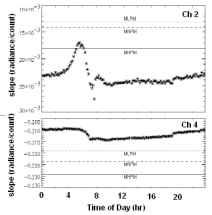
GOES-13 eclipse season stray light before fix (left) and after fix (right)

(Courtesy of J. Paul Douglas, OSPO)

Instrument Noise, Blackbody Temp and Cal Slope Monitoring







Ch	Det	Average GOES-10 Prelaunch (K)	GOES-10 On-Orbit (K)
2	A	0.1163	0.0933
	B	0.1259	0.1007
3	---	0.1480	0.1324
4	A	0.0725	0.0703
	B	0.0771	0.0757
5	A	0.1573	0.1516
	B	0.1568	0.1506

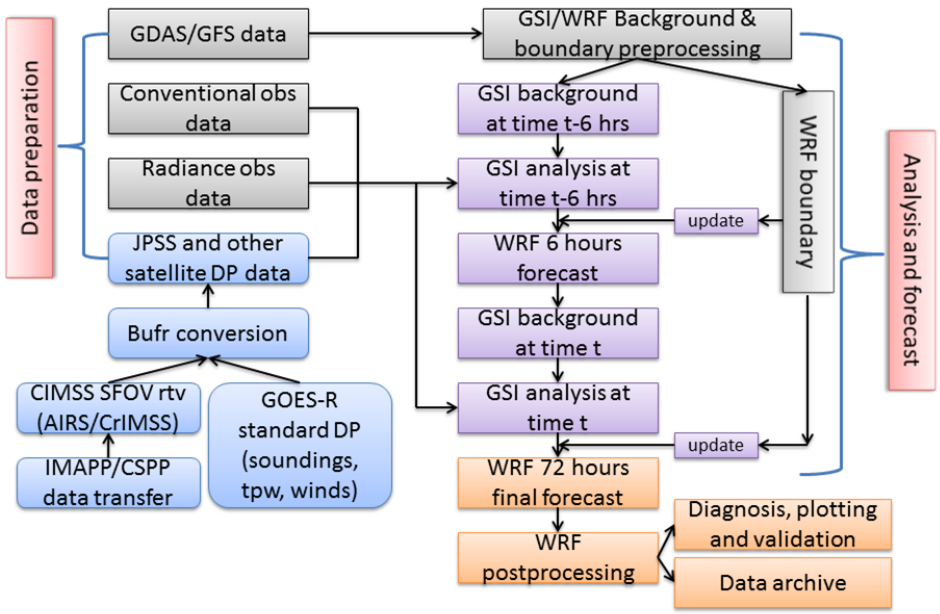
T-01

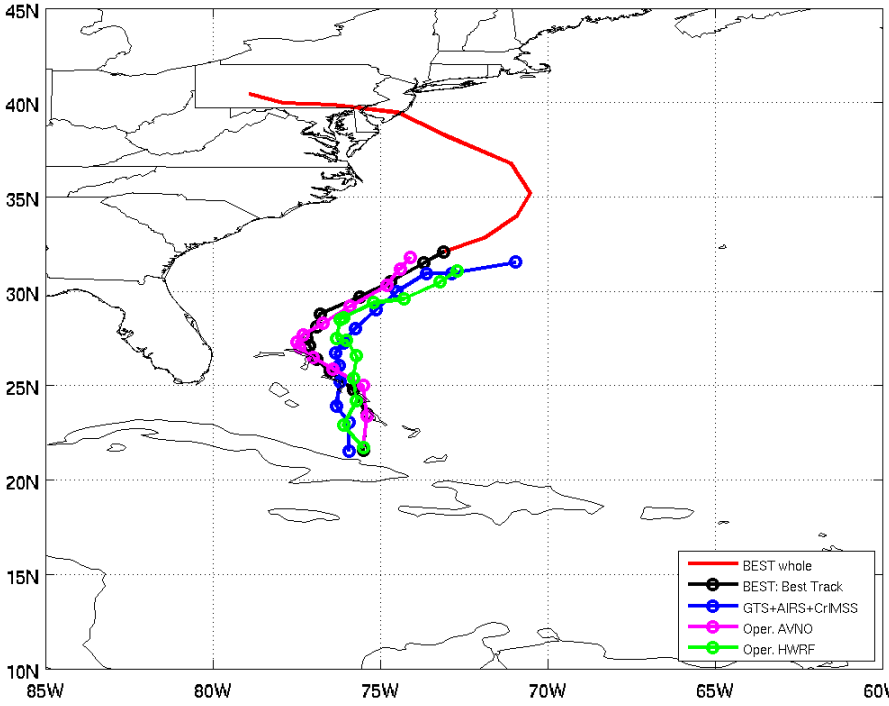
Application of JPSS Sounding and GOES-R Moisture Measurements for Tropical Cyclone Forecasts - A Near Real-Time Assimilation System

Jun Li@, Tim Schmit&, Mitch Goldberg#, Jinlong Li@, Pei Wang@, and John L. Beven*

@CIMSS/SSEC; &STAR/NESDIS; #JPSS Program Office; *National Hurricane Center

GOES-R (water vapor) and LEO (sounding) assimilation for TC forecasts – A demonstration system based on WRF/GSI



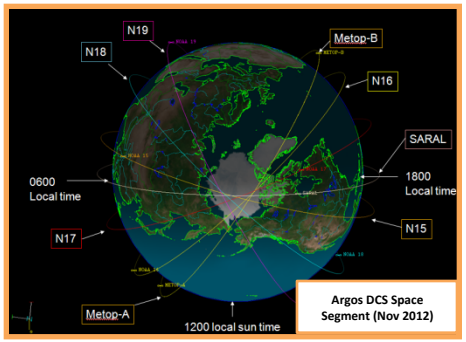


Hurricane Sandy track 72-hour forecasts started from 12 UTC 25 Oct 2012 valid to 18 UTC 30 Oct 2012.

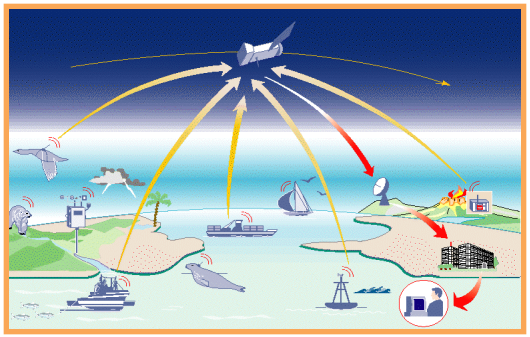
T-02

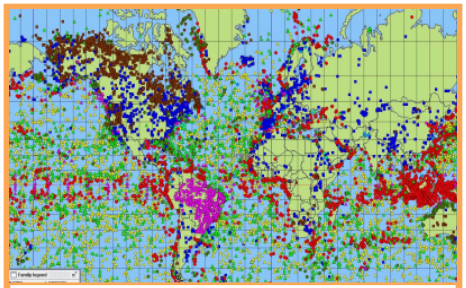
The Future of the Argos Data Collection and Location System

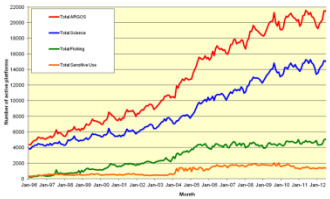
Scott Rogerson
NOAA/NESDIS/OSPO/SPSD – Direct Services Branch (DSB)
Suitland, MD



Argos DCS Space Segment (Nov 2012)

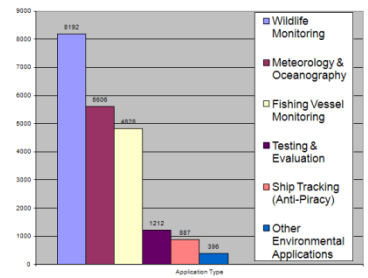



Global Distribution of Argos Platforms


Growth in Argos Use (1996-2012)

Major Applications

- Wildlife Studies
- Meteorology & Oceanography
- Fishing Vessel Monitoring
- Ship Tracking (Anti-Piracy)



Number of Active Platforms for Major Applications

Future Plans

Space Segment

2016-2030: Metop-C, EPS-SG and JPSS launches

Ground Segment

Optimized HRPT Network (for all satellites)

Argos-4 Instrument (for JPSS+)

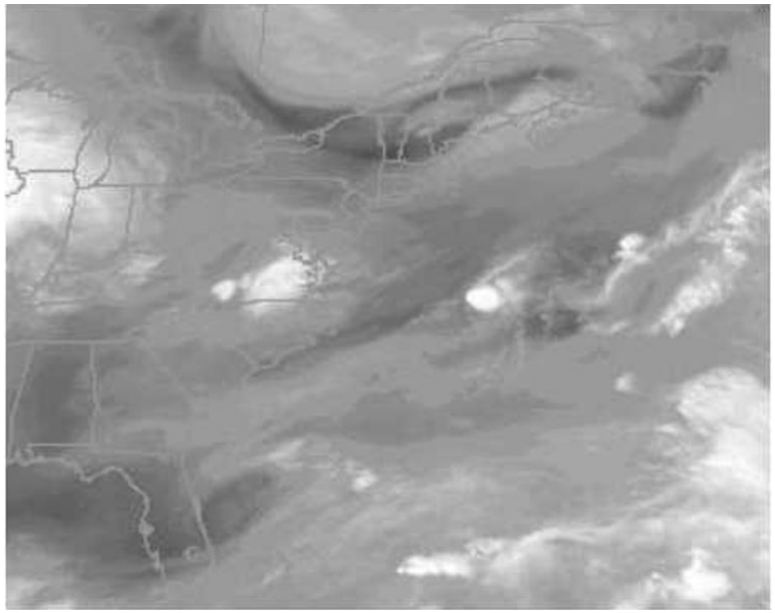
Expanded bandwidth

Increased receiver sensitivity and data throughput

Two-way comms w/spread-spectrum downlink

LARGE WILDFIRE GROWTH DAYS AND DRY SLOTS IN THE UNITED STATES

Dry Slots influence wildfire wx - abrupt surface drying, decreased fuel moistures, strong gusty winds, rapid increased fire behavior.



Double Trouble State Park Wildfire
WVI "ribbon of dry air", 1215 UTC, 2 June 2002
Courtesy of Charney and Keyser (2010)

2 June 2002 - 1800, RH lowest, <10% - A drop of 50%+ humidity in 4 hours!

Lowest RH, dew points, highest winds – alignment – rapid increased fire behavior as visible dry slot passes over the fire area.

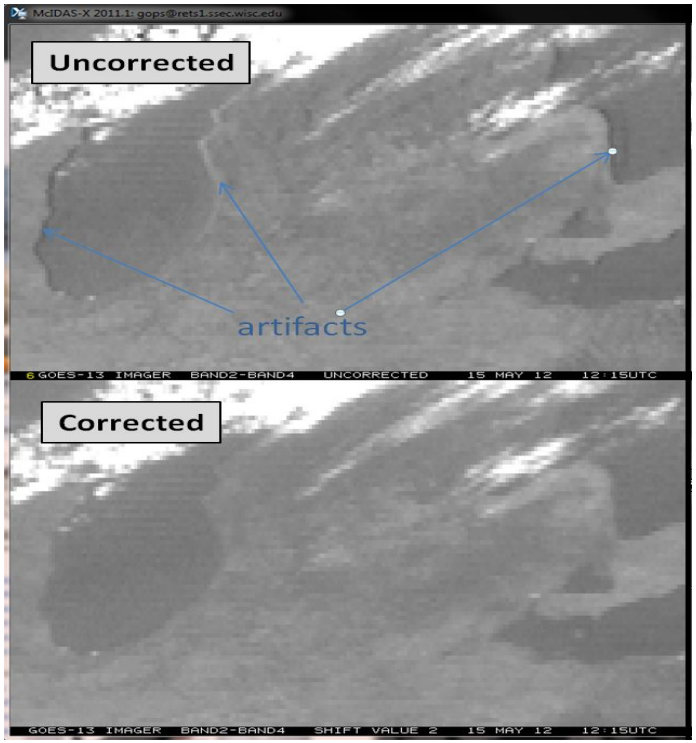
Winds, 70+ mi/h. Dry cold front. Lower tropospheric pool of dry air.

Fire wx characteristics very similar to Mack Lake Fire of 1980.

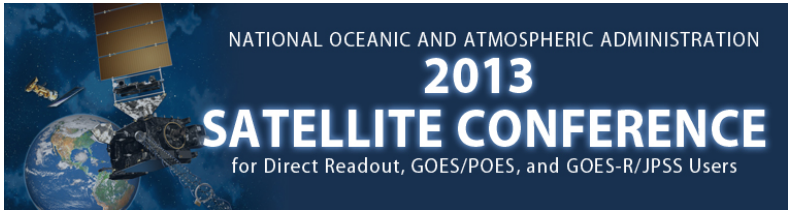
GOES Imager IR Channel to Channel Co-Registration Correction Program

Zhenping Li
SGT Inc, Greenbelt, MD.

- The program consists of two components:
  - GOES IR Channel to Channel Co-Registration Characterization to monitor and retrieve the co-registration errors between IR channels.
  - The Image Resampling on the Images in an IR channel to correct the co-registration errors.
    - Will be implemented in GOES Ground System.
    - GVAR Block 0 will be updated with the Image resampling status word.
- The data quality of the weather products that rely on the combination of the images in the IR channels has improved significantly after the co-registration errors are corrected with the resampled images.



GOES-13 Imager band difference (band 2 – band 4) for the uncorrected (top panel) and corrected images (lower panel).

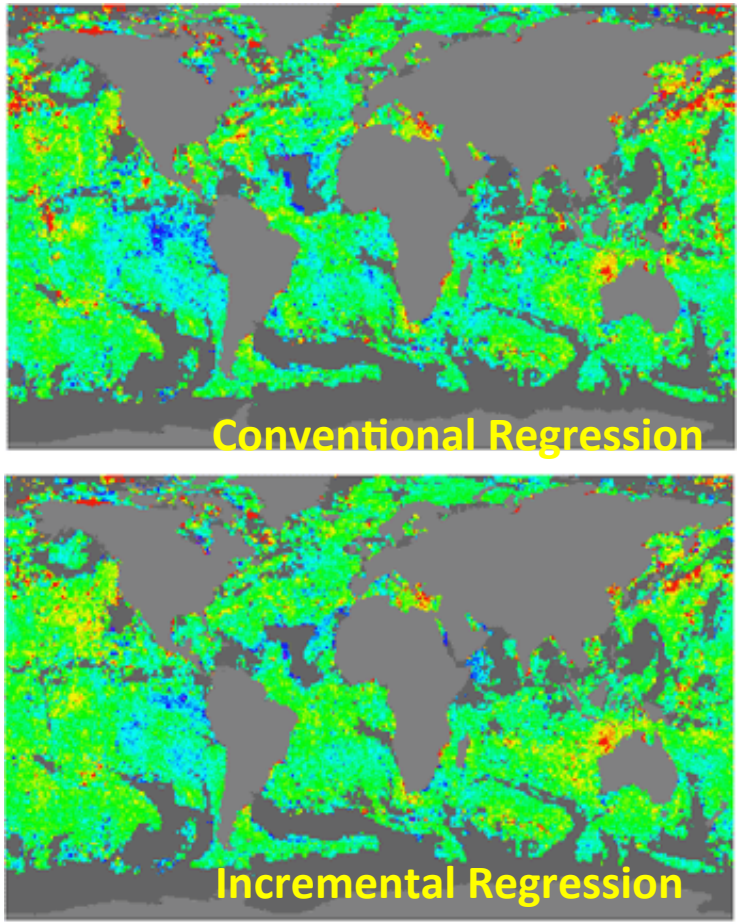


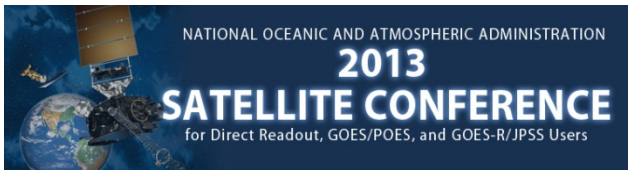
INCREMENTAL REGRESSION SST ALGORITHM FOR NPP VIIRS WITHIN THE ACSPO

NOAA/NESDIS/STAR, COLLEGE PARK, MD

- The S-NPP satellite with VIIRS instrument onboard was launched on 28 October 2011.
- At NESDIS/STAR, VIIRS SDRs are processed into L2 SST with the Advanced Clear-Sky Processor for Oceans (ACSPO)
- Currently ACSPO uses Conventional Regression SST algorithms (CR), but the plan is to add RTM-based Incremental Regression algorithm
- The IncR was:
  - Developed and tested for MSG SEVIRI as proxy of GOES-R ABI;
  - Internally tested for AVHRR and MODIS
  - Tested for AVHRR within the ESA Climate Change Initiative (CCI) project.
- According to all tests, the IncR produces more uniform SST accuracy and precision, compared with conventional regression algorithms

Daytime composite maps of SST - Reynolds produced from VIIRS data with Conventional Regressionand incremental Regression algorithms

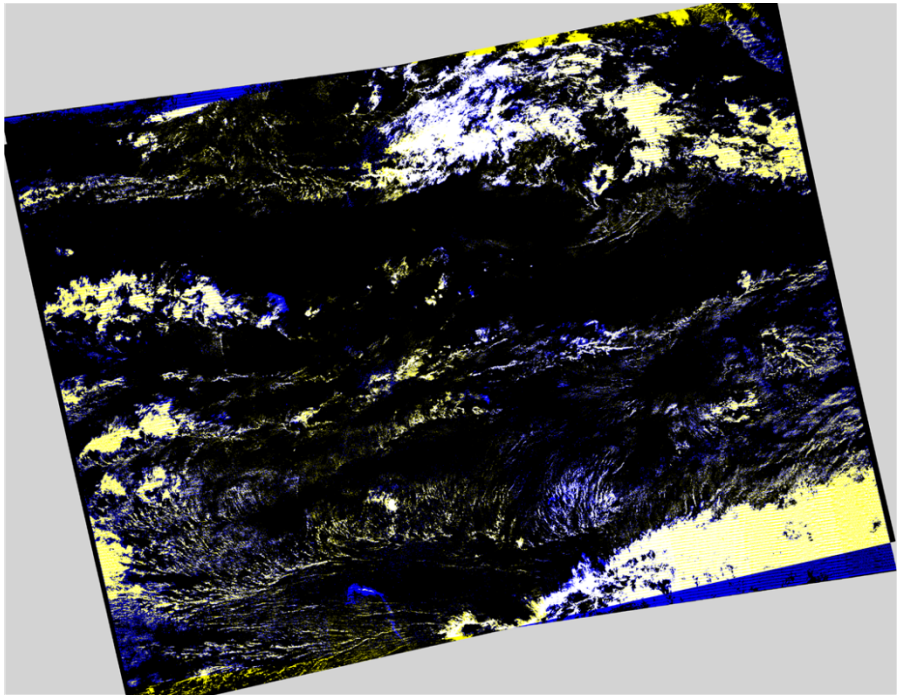




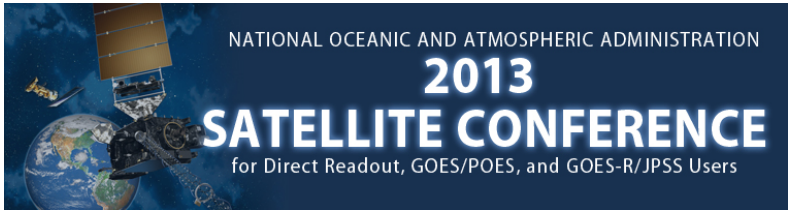
A Rapid Cloud Mask Algorithm for Suomi NPP VIIRS Imagery EDRs

Mark Piper
Exelis Visual Information Solutions
Boulder, Colorado

- A cloud mask algorithm, based on the Landsat 7 ACCA, has been adapted for VIIRS Imagery EDRs
  - Provides a quick assessment of the cloud cover in a VIIRS Imagery EDR at 350 m resolution
  - Less accurate and less detailed than the VIIRS Cloud Mask Intermediate Product



A comparison of the rapid cloud mask algorithm with information from the VIIRS Cloud Mask IP.

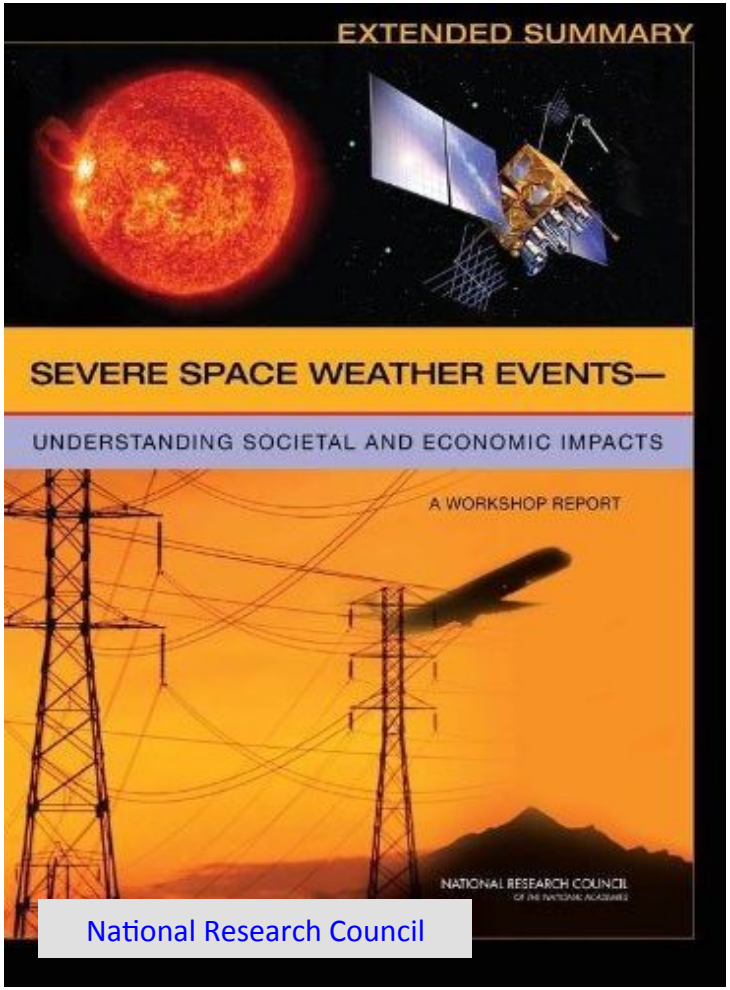


Societal Impacts of Space Weather

W. Denig[1] & S. Hill[2]

[1]NOAA/NESDIS/National Geophysical Data Center (NGDC)

[2]NOAA/NWS/Space Weather Prediction Center (SWPC)



National Research Council

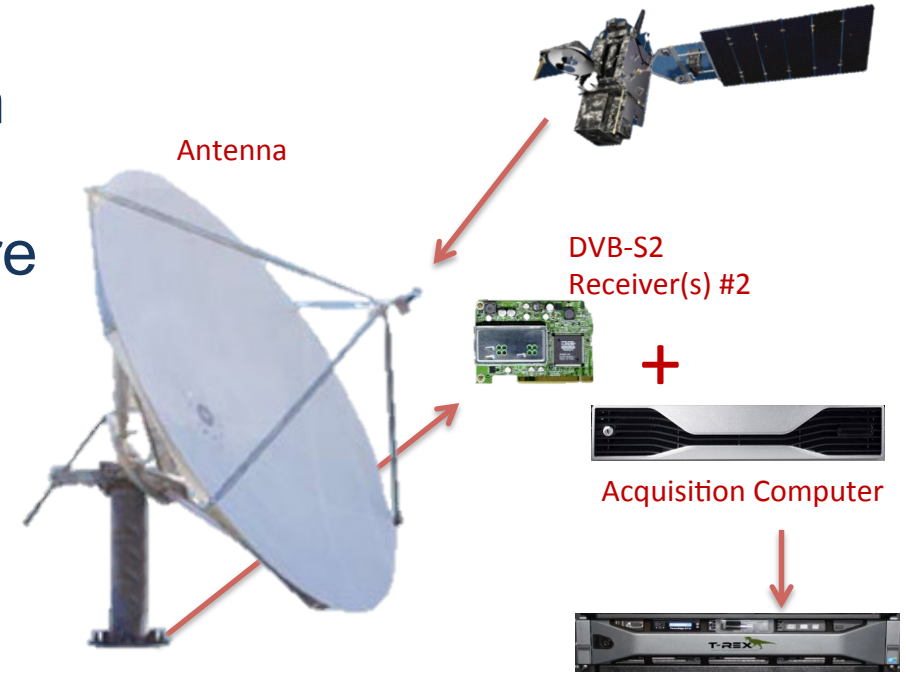
In 2008 the NRC released a report stating that the socio-economic impacts of a severe space weather event could exceed $2T. While such events are rare it has happened before and it will happen again.

Transformer Meltdown - 1989

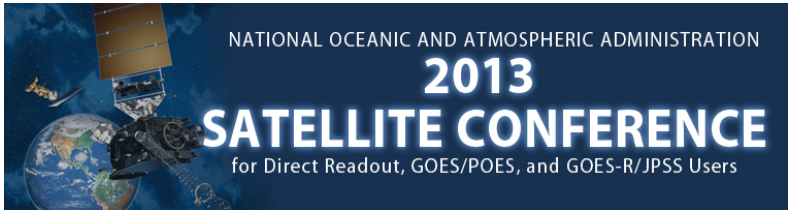
Preparing the Direct Broadcast Community for GOES-R

Karen Friedman Dubey
SeaSpace Corporation

- No current gvar ground station will be able to receive GRB
- GOES-R will have 2742% more data than GOES-P
  - Higher spatial and temporal resolution, more channels
- Direct broadcast is the fastest way to get GRB data
- Real-time data necessary for operational agencies



SeaSpace Direct Broadcast Ground Station for GOES-R

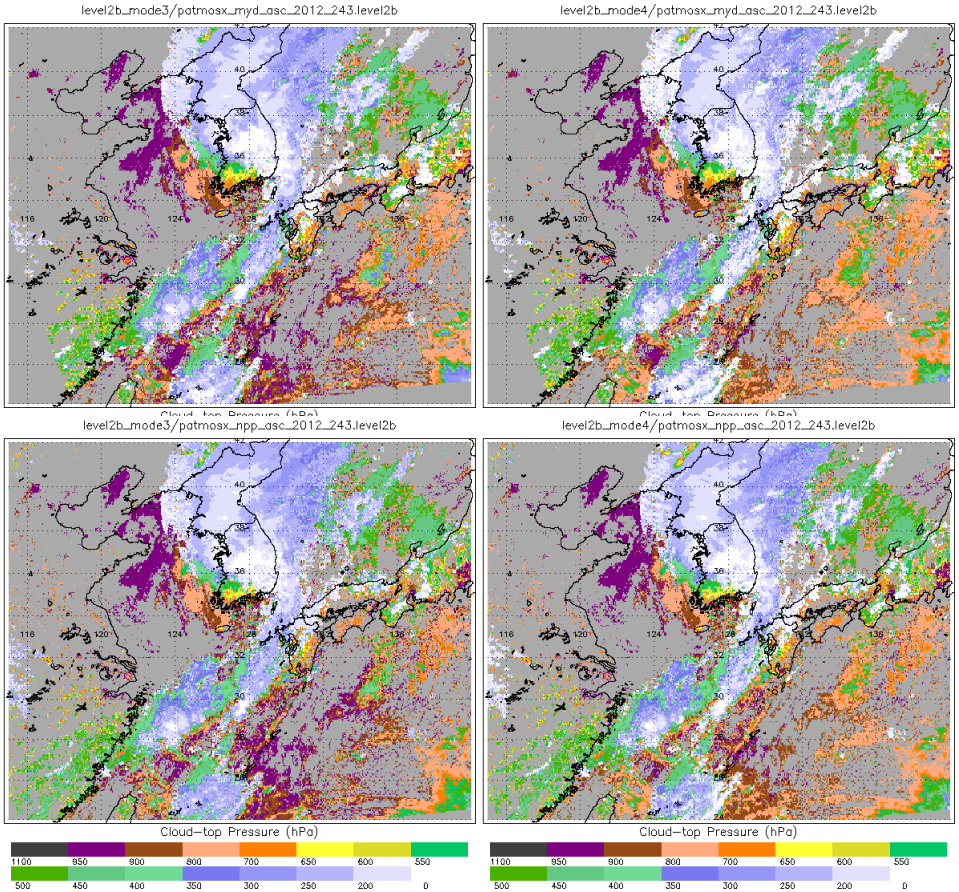


Cloud-Top Pressure Estimation from VIIRS using Statistically Reconstructed 13.3 micron channel

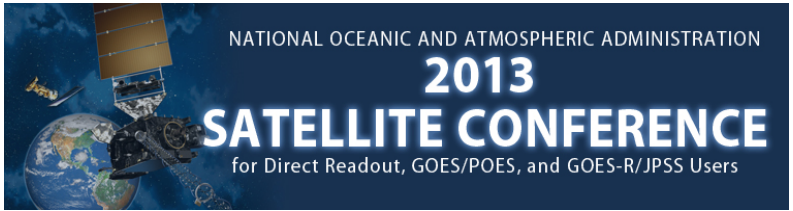
Irina Gladkova[1], James Cross[1], Andrew Heidinger[2], Paul Menzel[3], Michael Grossberg[1]

1. NOAA/CREST, City College of New York
2. NOAA/NESDIS, Office of Satellite Applications and Research
3. NOAA/CIMSS, University of Wisconsin

- VIIRS doesn't have 13.3μm band important for cloud-top pressure estimates
- CrIS has hyperspectral measurements in the CO2 absorption band at lower spatial resolution
- Aqua has MODIS and AIRS which can serve as proxy for VIIRS and CrIS
- We have developed an algorithm which uses available VIIRS bands along with CrIS measurements for estimating a **virtual** VIIRS 13.3 micron band.
- Tests showed that similarly-synthesized data would allow VIIRS/CrIS to match GOES-R in terms of cloud-top pressure determination, to within the GOES-R specifications.



Cloud-Top Pressure: MODIS with real 13.3um (Top Left), MODIS without 13.3um (Top-Right), VIIRS with pseudo 13.3um (Bottom Left), VIIRS without 13.3um (Bottom Right)



T-13

The Development of Polar Orbiting Satellite Processing Packages in Support of International Direct Broadcast Community

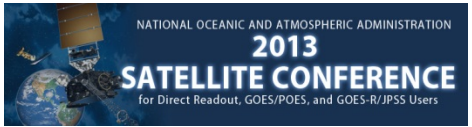
Allen Huang, Liam Gumley, and Kathy Strabala, SSEC/CIMSS UW-Madison
And Mitch Goldberg, JPSS Program Office, NOAA

- **IMAPP (International MODIS/AIRS Processing Package):**
  - L0 to L1 & L1 to L2 for MODIS, AIRS/ AMSU, & AMSR-E
  - Used by more than 1600 users in 70 countries
  - Infusing Satellite Data into Environmental Applications – International (IDEA-I) released in June 2012 for regional Air Quality Forecasts
  - Products distributed to more than 59 NWS forecast offices in real time, supporting:
    - Fire Weather Forecasting (NDVI, Surface Temperature, Visible bands)
    - Fog and Visibility forecasting (Fog Product)
    - Precipitation forecasting (TPW product)
    - Temperature Forecasting (SST, Surface Temperature)
    - Severe Weather Damage Analysis (NDVI, True Color)
    - Turbulence (WV Band Mountain Wave Identification)
    - Snow/Ice extent, blowing dust, blowing smoke (True Color Imagery)
    - Space Shuttle Weather Forecasting

http://cimss.ssec.wisc.edu/imapp/

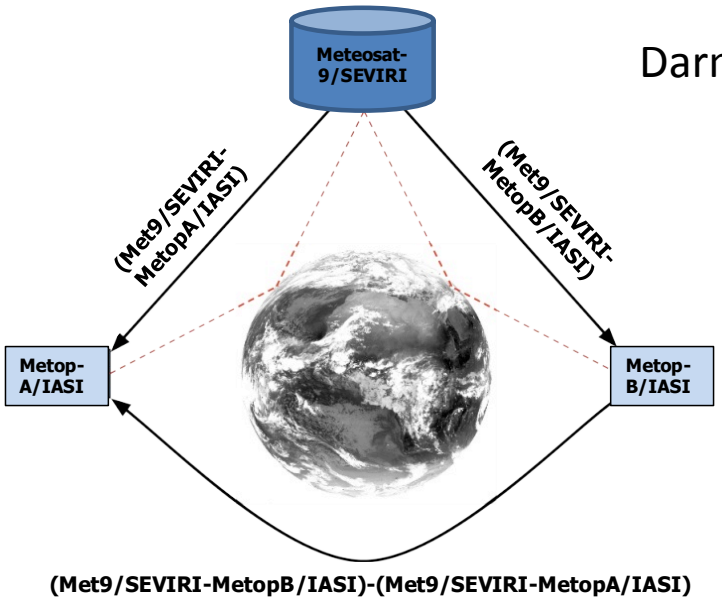
- **CSPP (Community Satellite Processing Package):**
  - 1st release (March, 2012) just a few months after launch of Suomi NPP
  - VIIRS, ATMS and CrIS calibration and geolocation software (Raw Data Records (RDRs) to Science Data Records (SDRs));
  - VIIRS Cloud Mask and Active Fires Environmental Data Records (EDRs);
  - VIIRS SDR reprojection software for the creation of GeoTIFFs and/or AWIPS NetCDF files;
  - CrIS, AIRS and IASI University of Wisconsin dual regression single Field-of-View (FOV) Temperature, Moisture, Surface and Cloud Retrieval Environmental Data Record (EDR).

http://cimss.ssec.wisc.edu/cspp/

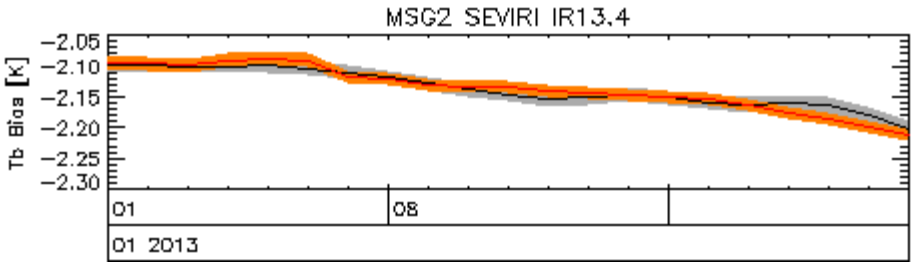


Migrating from Metop-A/IASI to Metop-B/IASI as GSICS inter-calibration reference for Geostationary IR Imagers

Tim J. Hewison
EUMETSAT
Darmstadt, Germany



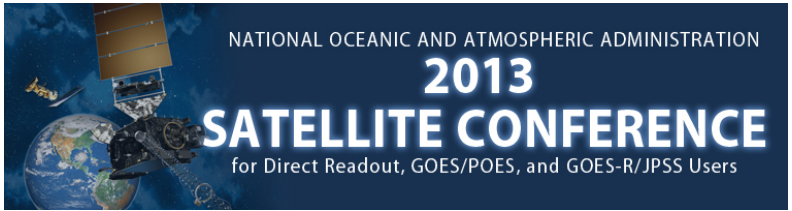
(Met9/SEVIRI-MetopB/IASI)-(Met9/SEVIRI-MetopA/IASI)



(Meteosat9/SEVIRI-MetopA/IASI)
(Meteosat9/SEVIRI-MetopB/IASI)

- No true Metop-B/A SNOs possible
  - Orbits ~180° out of phase
- But Meteosat-9/SEVIRI can be collocated with both Metop's
  - Use as transfer standard
  - Define *Delta Corrections* in SEVIRI channel space

- Biases for standard scene radiances (clear sky)
- First 2 months data from Metop-B/IASI
- Double differences are small (<|40mK|) for all channels
- MetopB/IASI equivalent to MetopA/IASI

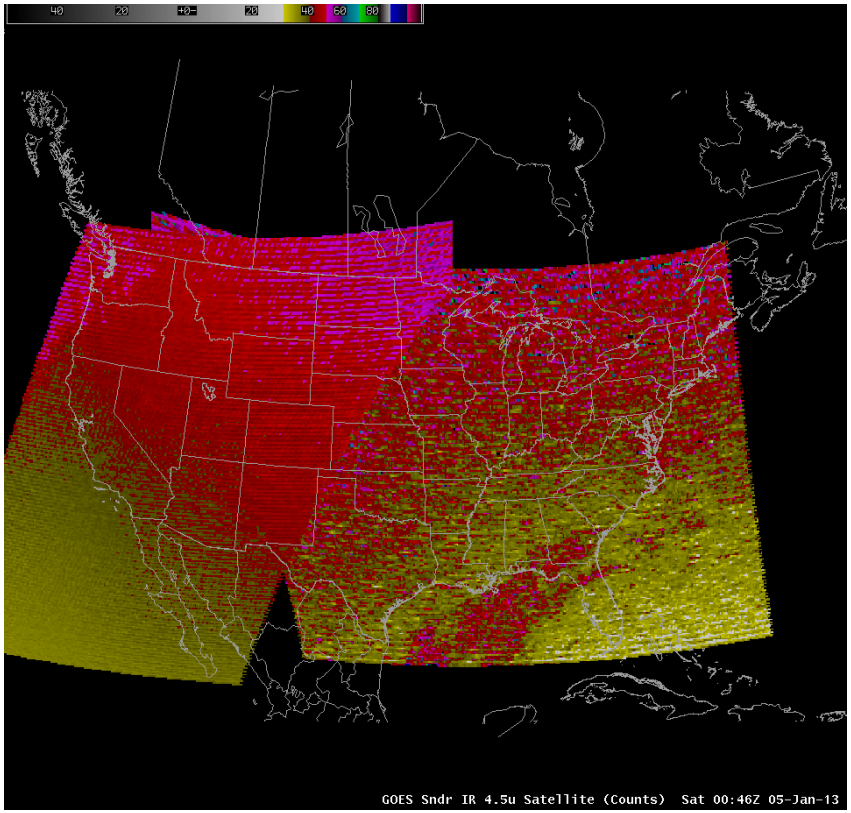


The ingredients for sustaining success in NOAA R2O for GOES-R

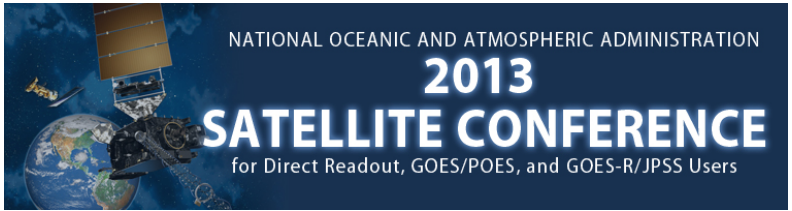
Jordan Gerth
CIMSS/SSEC/Univ. of Wisconsin
Madison, WI

Learn how **NOAA Cooperative Institutes** and a **consolidation of oversight** in satellite research to operations (R2O) programs can ***improve*** the value of **NOAA's scientific portfolio** and ***provide a foundation for enhancing*** **NOAA's operational services** through:

- Decreasing the time to negotiate the R2O process
- Leveraging existing relationships and infrastructure on the R2O interface



This GOES Sounder imagery is sent to forecasters hourly



VIIRS Imagery in NinJo

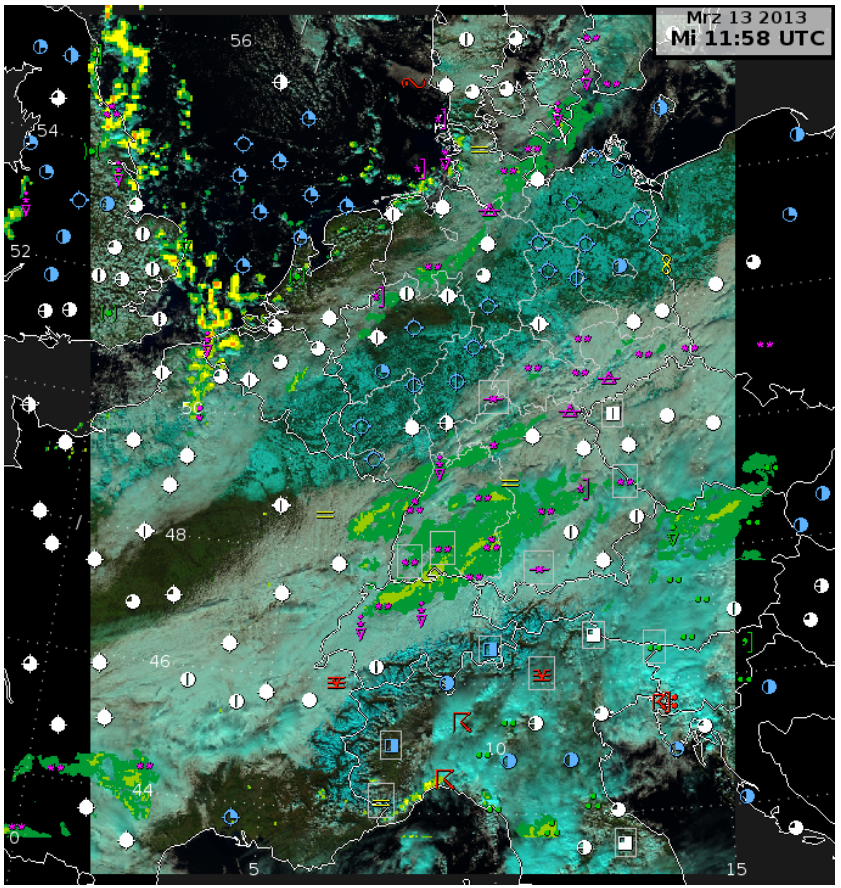
K. Hungershoefer[1], D. Hoese[2], W. Straka III[2], R. Garcia[2], E. Schiffer[2], J. Asmus[1], K. Strabala[2]

[1]Deutscher Wetterdienst, Central Development Division, Germany

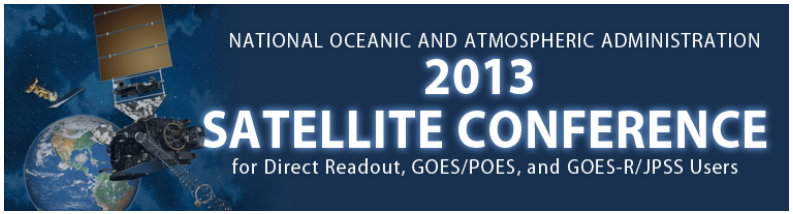
[2]CIMSS/SSEC, University of Wisconsin, USA

New satellite data has to be made available in the **forecasters visualization systems**

- CIMSS has developed the CSPP VIIRS re-projection software **Polar2Grid** to show VIIRS SDR data within **AWIPS I and II**
- In cooperation with DWD, CIMSS added the possibility to generate special TIF files for the visualization system **NinJo**



Suomi NPP VIIRS RGB, radar and surface data combined in NinJo

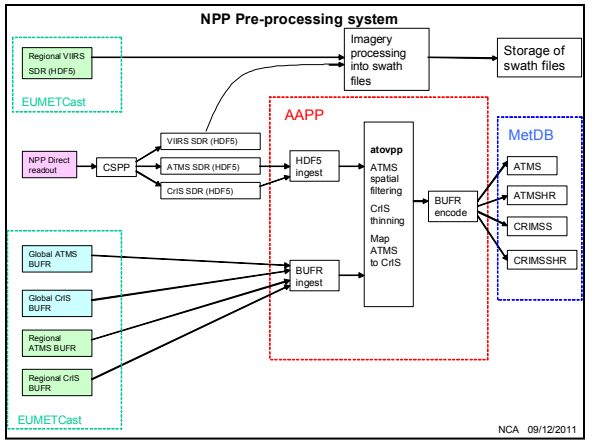


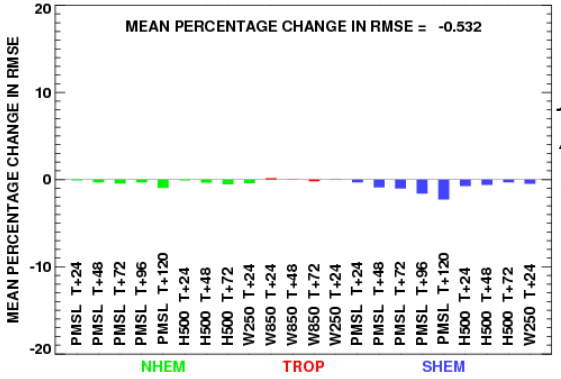
The Utilization of Data from Suomi NPP at the Met Office (UK)

Satellite Applications, Met Office, Exeter, UK

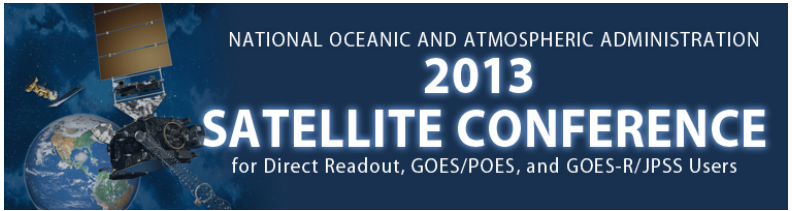
- **Near Real Time Reception**
  - Modification of our local direct broadcast reception system
  - EUMETCast delivery
  - Use of AAPP and CSPP for preprocessing of data
- **Operational Utilization**
  - ATMS & CrIS operationally assimilated into global weather prediction model
  - VIIRS imagery for forecasters

Preprocessing system for ATMS&CrIS&VIIRS





Reduction in forecast error when ATMS & CrIS data are added to the Met Office global NWP system



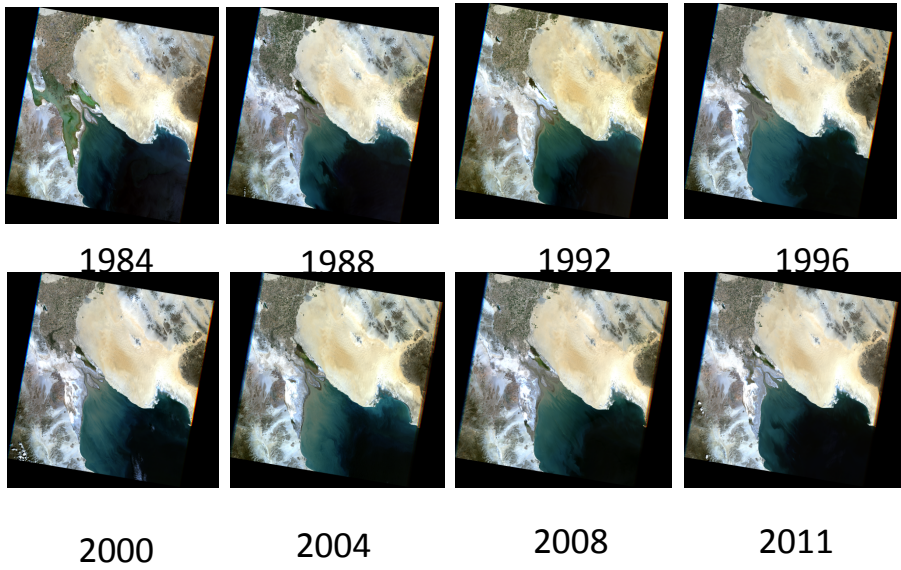
Sensor Calibration Inter-comparison using the Sonoran Desert

A. Angal [1], X. Xiong [2], A. Wu [3], G. Chander [4] and T. Choi [3]

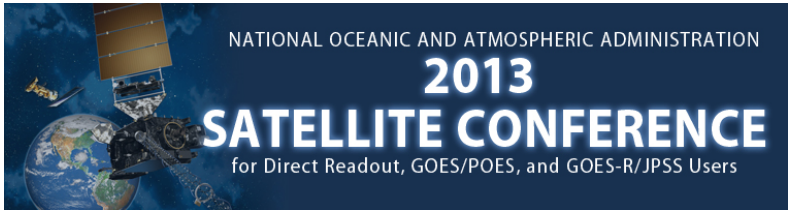
[1] Science Systems and Application Inc. [2] NASA GSFC [3] Sigma Space Corp. [4] SGT/USGS EROS

The Sonoran Desert (+32.35°,-114.65°) is a large flat area, partially vegetated, with typical horizontal visibilities of around 30-45 km

- The goal of this work is to demonstrate the suitability and assess its temporal stability for sensor calibration intercomparison efforts
- Study uses measurements from Terra and Aqua MODIS, Landsat 7 Enhanced Thematic Mapper (ETM+), and Landsat 5 Thematic Mapper (TM)
- Landsat Climate Data Record (CDR) Surface Reflectance product generated using ETM+ has been used to assess the suitability of the Sonoran desert target for long-term radiometric calibration.



Sonoran Desert seen by Landsat 5 Thematic Mapper (RGB composite)

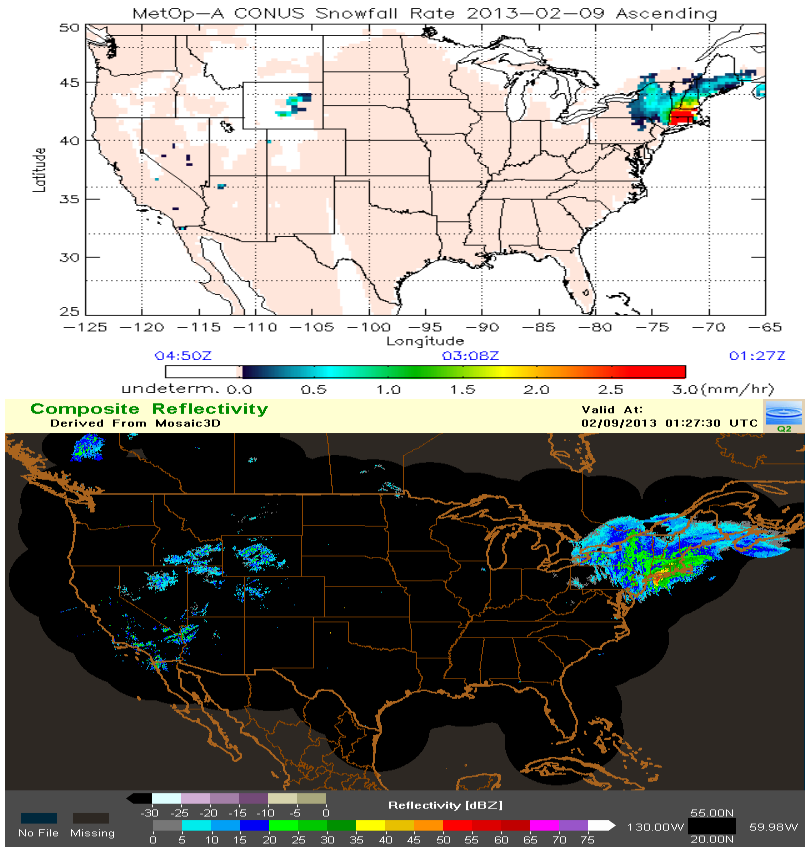


Snowfall Rate Retrieval Using Passive Microwave Measurements

[1]Huan Meng, [2]Banghua Yan, [1]Ralph Ferraro, [3]Cezar Kongoli, [3]Nai-Yu Wang, [2]Limin Zhao

[1]NOAA/NESDIS/STAR, [2]NOAA/NESDIS/OSPO, [3]UMCP/ESSIC/CICS

- Operational AMSU/MHS snowfall rate product
  - Global, over land, water equivalent
  - Aboard four satellites(NOAA-18/19 and Metop-A/-B), up to eight retrievals per day at any location at near real-time
  - Validated against radar and gauge snowfall data
  - Applications in hydrology, blended precipitation products, weather forecast etc.
- ATMS snowfall algorithms under development
  - A JPSS RRPG project
  - Two algorithms: snowfall detection and snowfall rate
  - Completion by December 2013



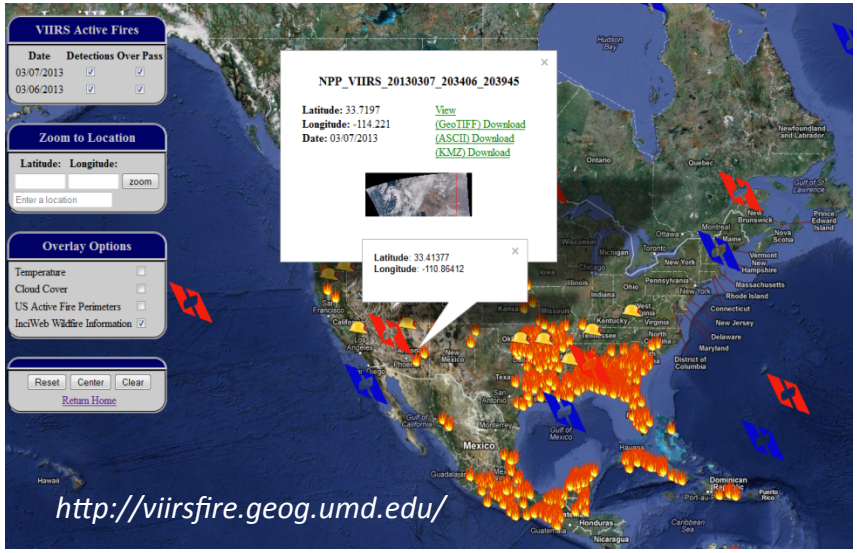
AMSU/MHS snowfall rate (top) and NEXRAD reflectivity (bottom)

Suomi NPP (SNPP) VIIRS Active Fire Data for Fire Management and Fire Weather Applications

Evan Ellicott

Department of Geographical Sciences, University of Maryland, College Park, MD

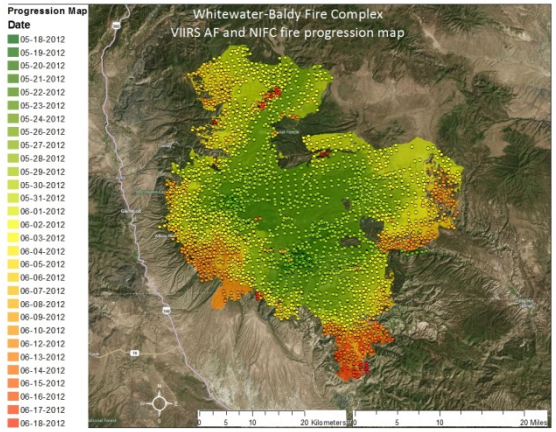
- The VIIRS Active Fire product is used by real-time resource and disaster management; air quality monitoring; ecosystem monitoring; climate studies, etc.
- **The goals of the VIIRS AF Proving Ground project are product evaluation and improvement and the development of a near-real-time enhanced product delivery system to support fire management and NOAA operations.**

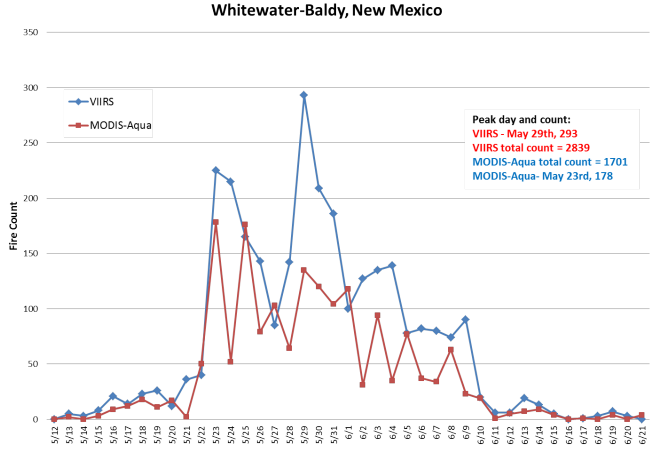


Screen capture of interactive data map from VIIRS AF website

Evaluation of VIIRS AF product from 2012 U.S. wildfire season demonstrates utility and accuracy.

At Right: Example evaluation from the Whitewater-Baldy fire, NM

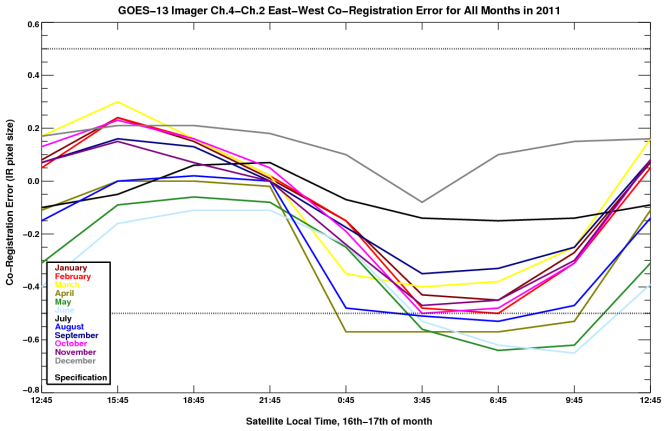


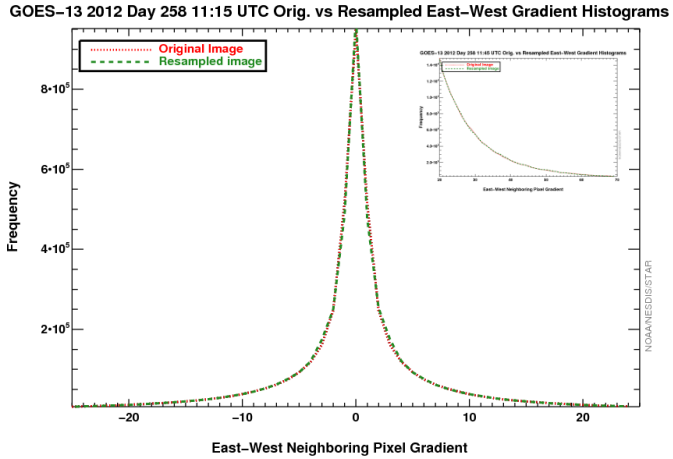


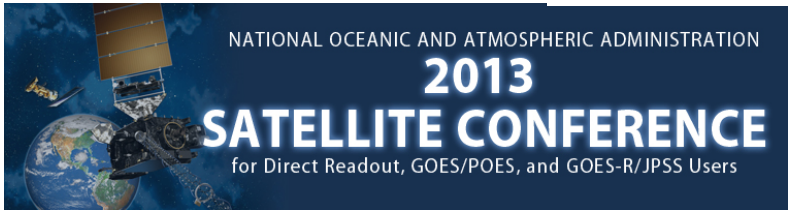
On-orbit characterization of the GOES Imager channel-to-channel co-registration and correction algorithm evaluation

Michael G. Grotenhuis
ERT, Inc. @ NOAA/NESDIS Center for Satellite Applications and Research (STAR)
College Park, MD

- The GOES-13 Imager infrared channel-to-channel co-registration error has been characterized and a resampling correction algorithm has been evaluated
  - STAR characterized the co-registration error, which sometimes exceeds specifications
  - STAR evaluated the proposed co-registration correction algorithm for image quality





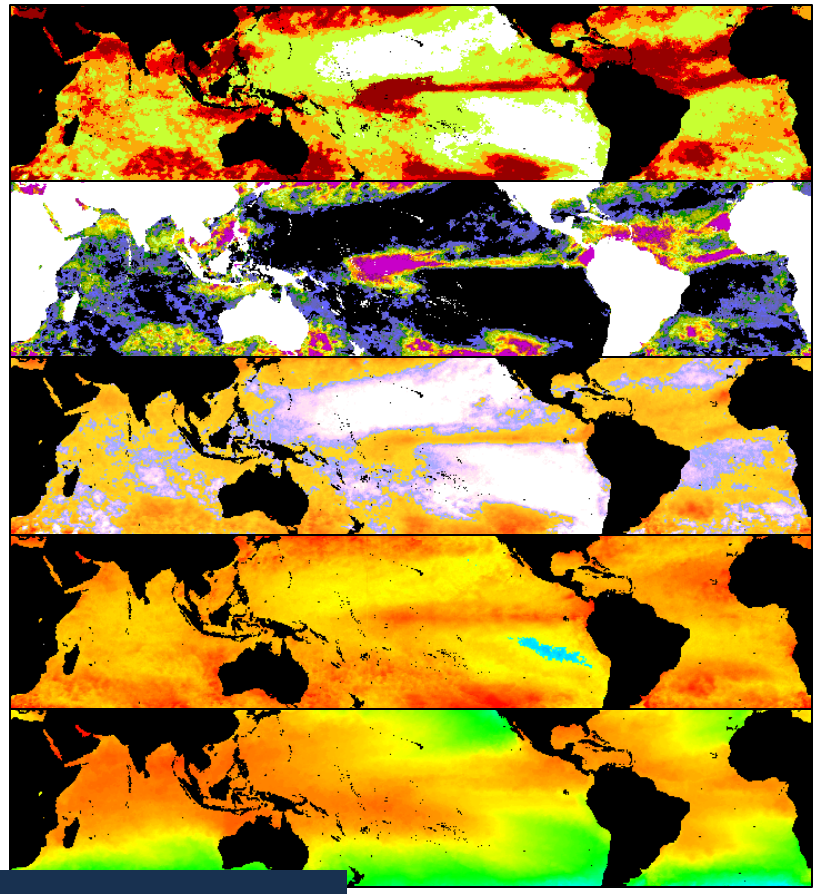


Top: Co-registration error characterization by month
Bottom: Evaluation of resampled image gradients

NOAA Operational Satellite SST for Monitoring Coral Bleaching Thermal Stress: Coral Reef Watch's Satellite Decision Support System for Coral Reef Managers

Gang Liu et al. NOAA/NESDIS Coral Reef Watch, College Park, Maryland

- Monitoring stresses harmful to coral reef ecosystems worldwide
  - Guiding management actions/practices
  - Contributing to climate impact mitigation
- Improving and expanding the Decision Support System
  - Applying new NESDIS satellite products
  - Expanding monitoring capacity
  - Communicating directly with users
- Serving the global coral reef community effectively for more than a decade



Substantial coral bleaching thermal stress in 2010, as viewed by Coral Reef Watch products

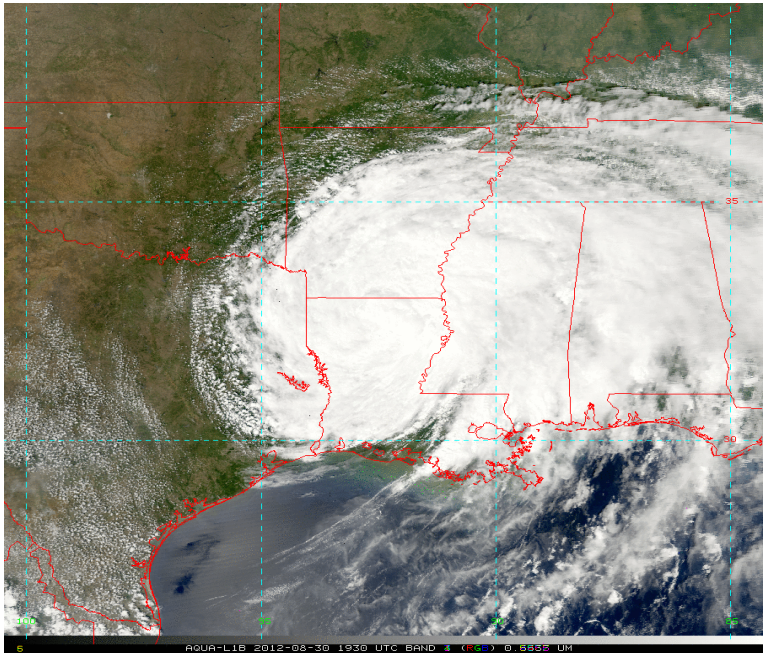
Coral Reef Watch

Overview of the GOES-R Proving Ground Activities at the National Hurricane Center

Christopher Velden[1], Mark DeMaria[2], John Knaff[2], Mike Brennan[3], Jack Beven[3], Hugh Cobb[3], Jessica Schauer[3], Kevin Fuell[4], Jason Dunion[5], Michael Folmer[6]

[1]Cooperative Institute for Meteorological Satellite Studies (CIMSS) Madison, WI
[2]NOAA/NESDIS Regional and Mesoscale Meteorology Branch (RAMMB), Ft. Collins, CO
[3]National Hurricane Center (NHC), Miami, FL
[4]NASA Short-term Prediction Research and Transition Center (SPoRT), Huntsville, AL
[5]Cooperative Institute for Marine and Atmospheric Studies (CIMAS), Miami, FL
[6]Cooperative Institute for Climate and Satellites (CICS), College Park, MD

- 9 GOES-R products demonstrated in 2012
  - Focus on Tropical Cyclone applications and general tropical analyses
  - Baseline, and future capabilities
  - GOES-R proxy data employed (i.e. Meteosat SEVIRI, MODIS)
- NHC/TAFB feedback obtained
  - Forecasters gaining experience
  - Feedback helping product refinement
- S-NPP products to be added in 2013

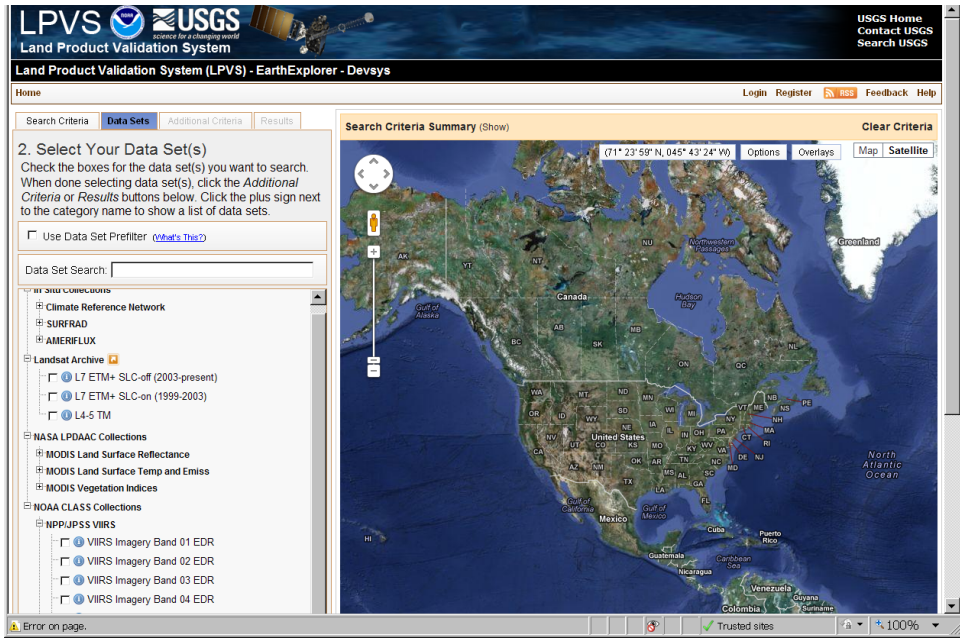


GOES-R natural color for Hurricane Isaac after landfall (MODIS proxy data)

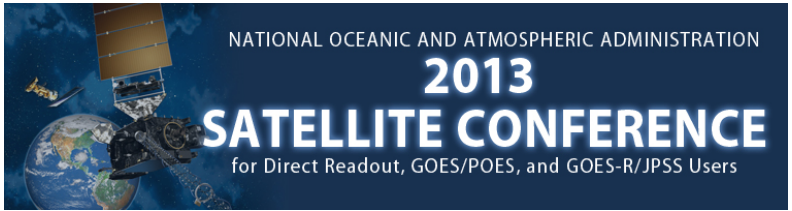
Enhanced data access and retrieval for analysis and validation of ABI and VIIRS land data and products

Kevin Gallo,
NOAA/NESDIS and USGS/EROS, Sioux Falls, SD

- System under development to enhance ABI and VIIRS product characterization and validation.
- Validation and characterization of ABI and VIIRS land products are required.
  - System facilitates access and use of multiple sensors (e.g., Landsat and MODIS) and in situ data (e.g., CRN, AMERIFLUX, SURFRAD, CEOS) for validation and characterization of ABI and VIIRS data & products.



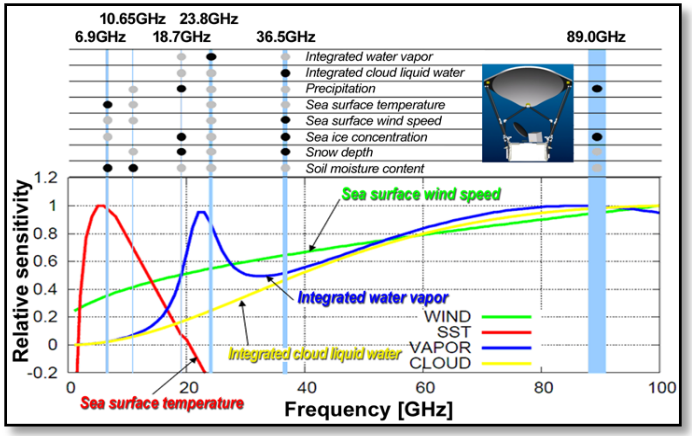
Land Product Validation System prototype web page for initiation of in situ and satellite data searches.

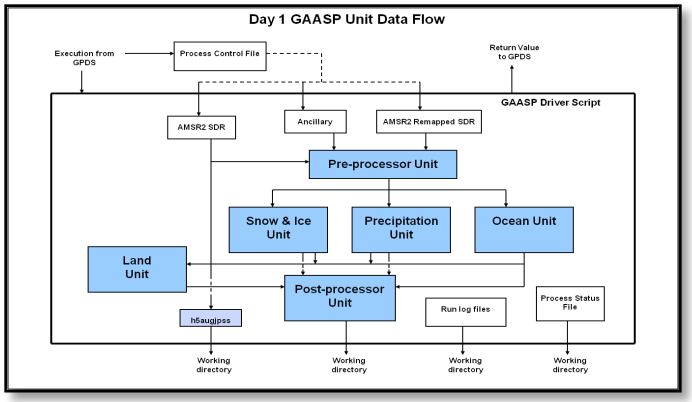


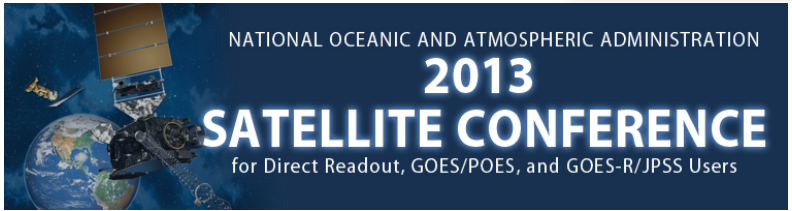
Overview of the NOAA GCOM AMSR2 Algorithm Software Processor (GAASP) Package

L. Soulliard, T. King, E. McMichael, Z. Jelenak, W. Wolf, P. Chang, and R. Ferraro
NOAA/NESDIS/STAR Satellite Meteorology and Climatology Division (SMCD)
College Park, MD

- AMSR2 is the microwave instrument on board GCOM from which hydromet parameters will be produced:
  - Tb, TPW, CLW, SST, SSW, SMOIS, SIC, SWE, etc.
- The software developed to process AMSR2 data is based on the NUCAPS system.
  - Preprocessor: Ingest AMSR2 SDR files.
  - Algorithms: Day 1 / Day 2 EDR split.
  - Postprocessor: Convert EDRs to netCDF4 for distribution.
  - Data handling and algorithms written in FORTRAN 90, all wrapped in Perl scripts.



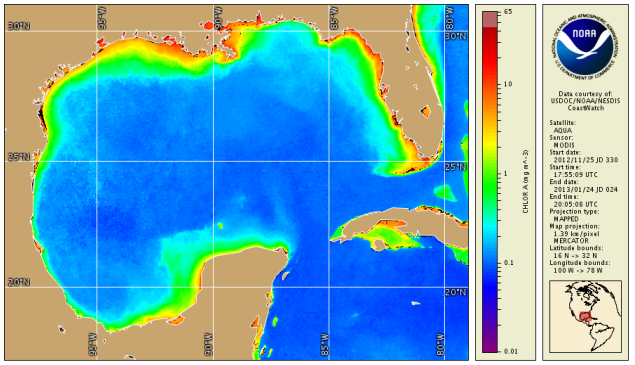




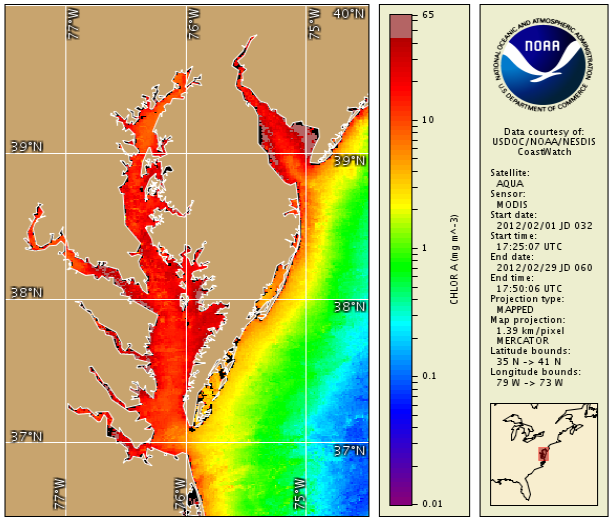
Status and Prospective of Operational Ocean Color Products from the NOAA CoastWatch Okeanos System

Banghua Yan
NOAA/NESDIS/OSPO Satellite Products Branch(SPB)
College, MD

- The NOAA CoastWatch Okeanos system has been providing the following high quality ocean color operational products from MODIS observations:
  - Regional daily and bi-monthly mean chlorophyll concentrations (chl-a) and remote sensing reflectance at 667 nm (Rrs667)
  - Regional water attenuation coefficient at 490 nm (Kd490)
  - Regional daily chl-a and Rrs667anomaly
  - Regional chlorophyll fronts (magnitude and direction)
  - Global Emiliania huxleyi (Ehux) bloom and calcite concentration map



Gulf-of-Mexico bimonthly mean chl-a

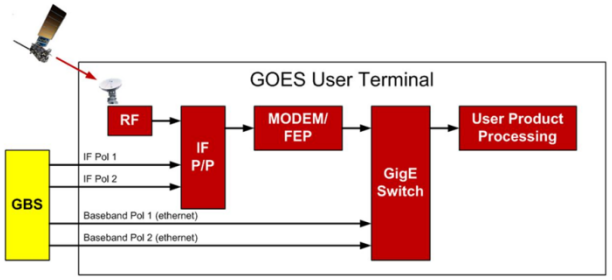


Chesapeake Bay monthly mean chl-a

The GRB Simulator: A Testing System for GOES-R Rebroadcast (GRB) Receivers

Authors: K. Gibbons[1], C. Miller[1], G. Dittberner[1], R. Race[2], and E. Czopkiewicz[1]
[1]Harris Corporation, [2]CTSI

- Provides high-fidelity streams of Consultative Committee for Space Data Systems (CCSDS) formatted GRB packet data equivalent to live GRB data
- GRB Simulator provides
  - Instrument data packets
  - Metadata packets
- Instrument packets provide data simulated from any instrument
  - Imagers (ABI, SUVI)
  - Non-Imagers (GLM, SEISS, EXIS, MAG)



Joint Polar Satellite System Common Ground System (JPSS CGS) Algorithm Development Library (ADL) for Environmental Satellite Missions

Kerry Grant, JPSS CGS Chief Scientist
Raytheon Intelligence and Information Systems, Aurora CO
Gary Metz, IDPS ING/PRO Software Manager, Bryan Henderson IDPS ADL Lead Software Engineer
Paul Siebels, IDPS Deputy Software Manager
Raytheon Intelligence and Information Systems, Omaha, NE

- The ADL provides significant time and cost savings during algorithm development and implementation into an operational baseline.
  - It is estimated that by using the AD algorithm developers can achieve 1 - 25% cost savings and that operational conversion/ implementation can achieve 25 – 50% cost savings compared to the cost of typical algorithm development and conversion into an operational baseline

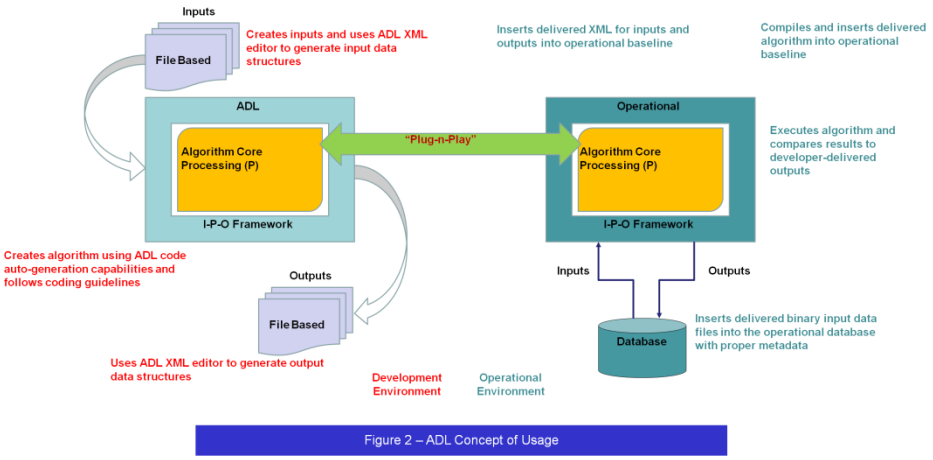
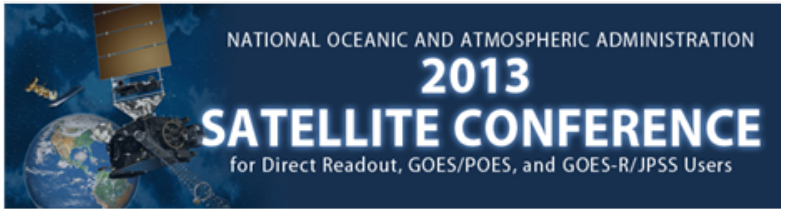


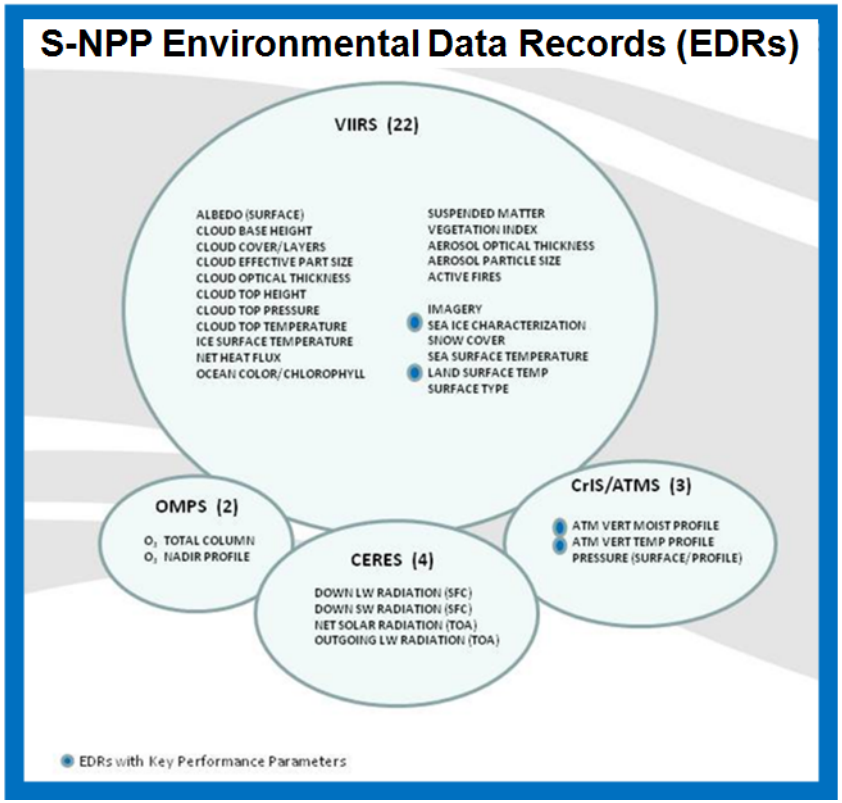
Figure 2 – ADL Concept of Usage

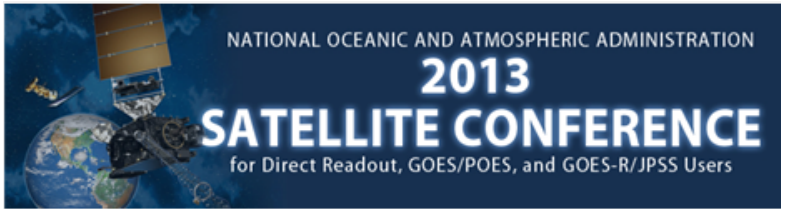


Suomi National Polar-orbiting Partnership (S-NPP) Environmental Products

Kerry Grant, Raytheon Intelligence and Information Systems, Aurora CO
Robert Hughes and Nancy Andreas, Northrop Grumman Aerospace Systems, Redondo Beach, CA
Mike Haas, Frank Eastman, Gary Mineart, and Jane Whitcomb, Joint Polar Satellite System

- As S-NPP products become available in the archive, users require information about product sizes, coverage, and measurement range
  - Products are presented by sensor with a description of the product itself, its anticipated use, its size based on the actual non-aggregated data granule, coverage, and measurement range

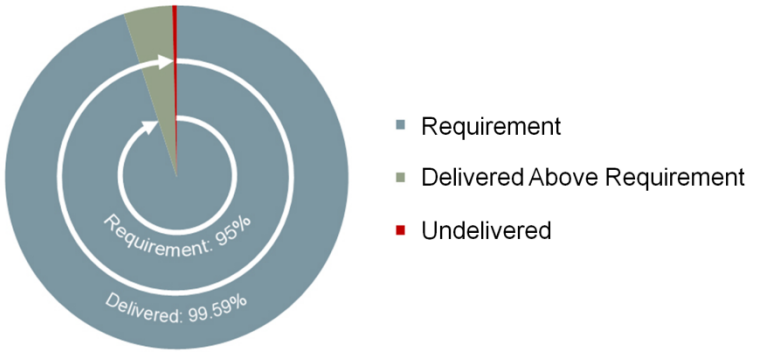




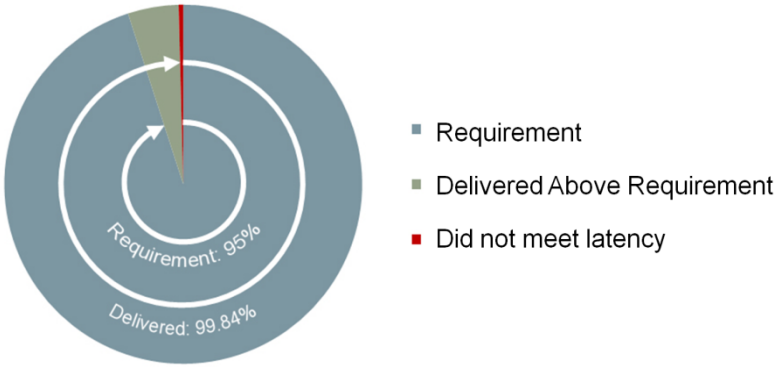
Joint Polar Satellite System Common Ground System (JPSS CGS)
Operational Ground System Performance for Suomi National Polar-Orbiting Partnership (S-NPP)

Kerry Grant, JPSS CGS Chief Scientist, Craig Bergeron, CGS System Performance Manager
Raytheon Intelligence and Information Systems, Aurora CO

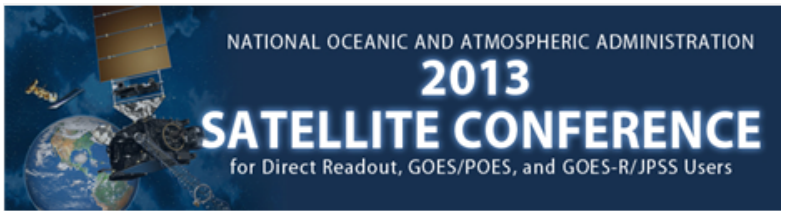
- In a recent operational performance test, the CGS exceeded its availability and latency requirements over a 45 day measurement period
  - CGS delivered 99.59% of the 1,964,168 possible products to the archive facility.
  - 95% of 2,265,484 EDRs were required to be delivered to the Air Force Weather Agency within the latency period; CGS delivered 99.84%



Availability Performance



Latency Performance



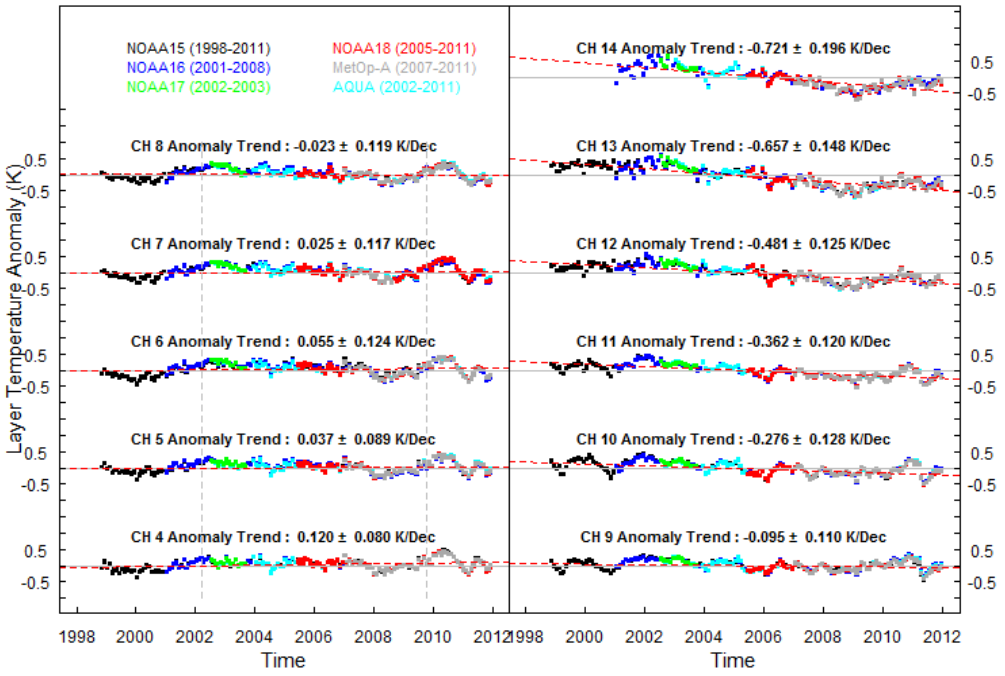
AMSU-A Only Atmospheric Temperature TCDRs

Wenhui Wang[1] and Cheng-Zhi Zou[2]

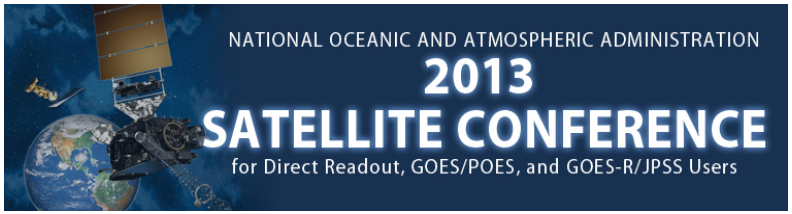
[1] I. M. Systems Group, Rockville, Maryland, USA

[2] Center for Satellite Applications and Research, NESDIS/NOAA, Camp Springs, Maryland, USA

- Global monthly averaged gridded AMSU-A atmospheric temperature thematic climate data records (TCDRs)
  - Based on STAR recalibrated AMSU-A level 1c radiances from 6 satellites
  - Methodologies
    - Corrected for sensor incidence angle and frequency shift effects
    - Corrected for diurnal drift effects
    - Removed residual warm target temperature effect and Earth location-dependent constant bias
  - 11 layers of well-merged global gridded (2.5° x 2.5 °) TCDRs
    - Lower-troposphere to the top of stratosphere
    - 1998 - 2011
  - Support high vertical resolution and MSU/AMSU-A, SSU/AMSU-A merged long-term climate trend studies and monitoring.



AMSU-A global mean layer temperature anomaly time series and trends (gray dash vertical lines show the 2002/03 and 2009/10 El Niño events).



Predicting Severe Weather from Sounding Pairs

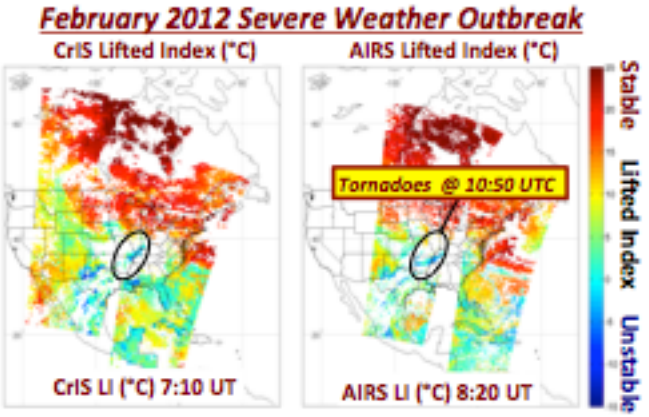
W. Smith Sr.[1,2], E. Weisz[1], and N. Smith[1]

[1] University of Wisconsin-Madison

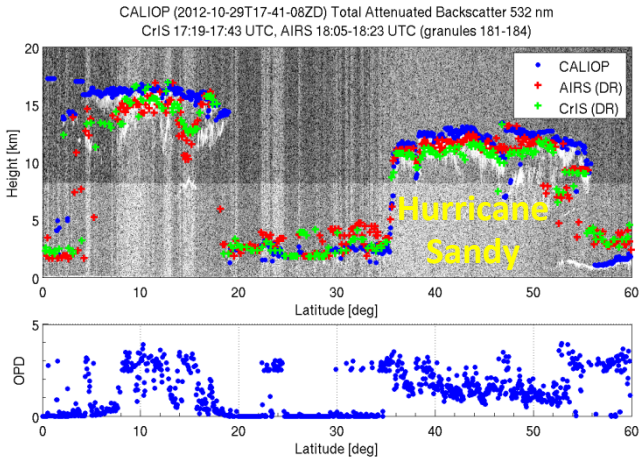
[2] Hampton University

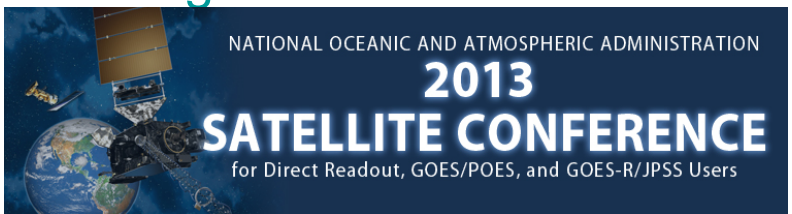
- Ultraspectral Sounders On 4 Satellites
  - Aqua/AIRS (13:30 LST)
  - Suomi-NPP/CrIS (13:30 LST)
  - Metop-A/IASI (09:30 LST)
  - Metop-B/IASI (08:45 LST)

1



- Applications
  - Time tendencies of atmospheric variables from consecutive orbits
  - Moisture flux
  - Pre-convective stability change
  - Cloud top height changes associated with storm intensity tendency
  - Environmental steering currents





Integrating JPSS Algorithms with Efficiency and Ease: STAR Algorithm Integration Team (AIT)

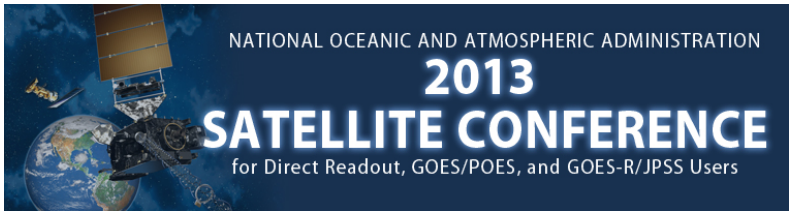
Bigyani Das, Walter Wolf, Valerie Mikles, Youhua Tang, Marina Tsidulko, Weizhong Chen and Kristina Sprietzer

STAR AIT provides expertise and support in effective integration of science algorithms for Sensor Data Records (SDRs), Environmental Data Records (EDRs), and Intermediate Products (IPs) into operational systems to meet JPSS Science mission goals. AIT assists in:

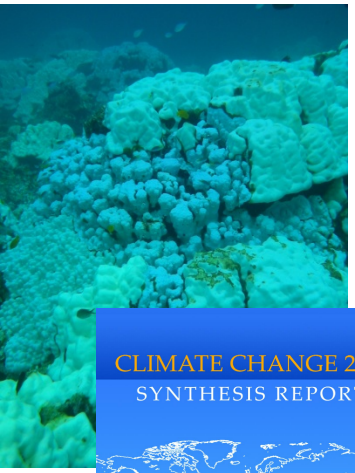
- Integration of new or updated algorithm and Look-up Tables (LUTs) in ADL (Algorithm Development Library) framework.
- Emulation of various operational testing scenarios
- Facilitation of communication between scientists and JPSS Ground Project Data Products Engineering (DPE) Team
- Submission of algorithm change packages (ACPs) with regard to Discrepancy Reports (DRs)
- Analysis of test results for scientific comparison

Algorithm	Discrepancy Reports (DRs)	AIT Support
CrIMSS EDR	Seven Discrepancy Reports (DRs) 4922, 4926, 4942, 4943, 4945, 4946, 4958 with code updates and two LUT updates for correcting channel indexing errors and for greater yield and performance	Integrated code and LUT updates in ADL; Tested and emulated different IDPS versions; Delivered ACP; Followed up with various functional tests and reviews.
VIIRS EDR – Land Surface Albedo	DR 4704 - Update VIIRS-LSA-BPSA-LUT and corresponding code changes	Performed tests and troubleshooting in ADL; Delivered ACP; Followed up with tests and reviews.
VIIRS EDR – Active Fire Team	DR 5029 - Filter out false fire counts	Performed ADL tests and troubleshooting,

STAR AIT Support in Algorithm Integration Activities



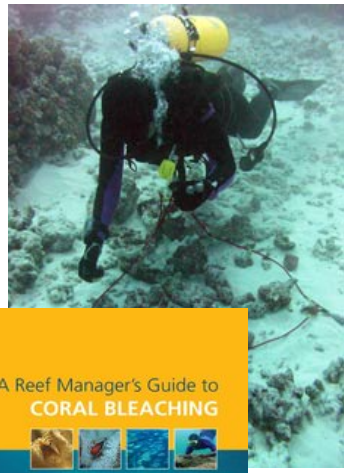
Application of NOAA Coral Reef Watch's Near-Real-Time Satellite Decision Support System to Local Coral Reef Management



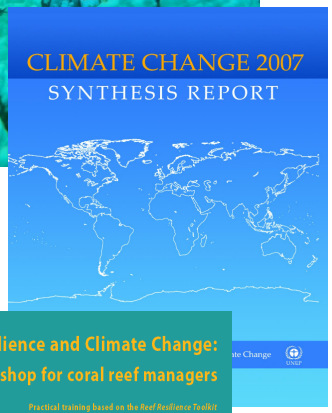
Jacqueline L. Rauenzahn et al.

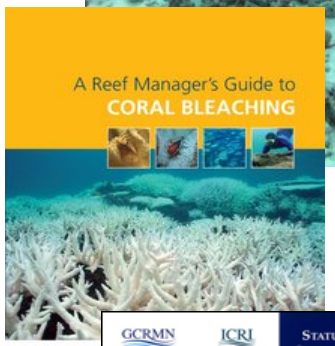
NOAA/NESDIS Coral Reef Watch (CRW)

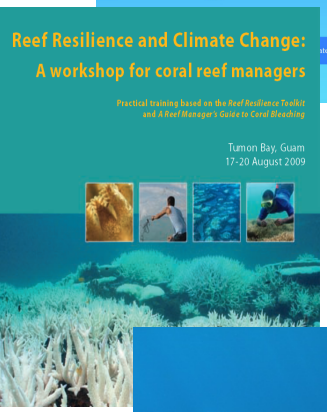
College Park, MD

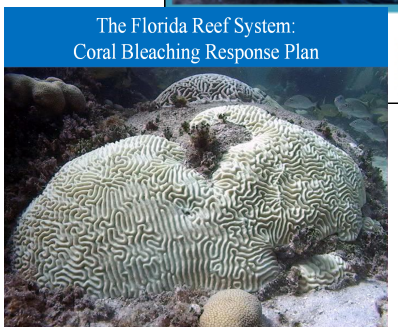


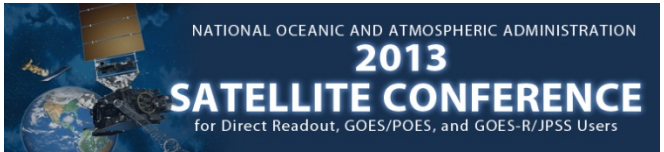
- NOAA CRW's satellite-based Decision Support System (DSS) helps managers and stakeholders worldwide prepare for/respond to climate change stressors on coral reefs
  - CRW Data and Products:
    - Guide local & regional management responses to acute coral bleaching stress
    - Provide climate outlooks for effective management planning/resource allocation
    - Contribute to regional & local coral bleaching/disease response plans
    - Assist in comprehensive risk assessments of climate impacts to coral ecosystems
    - Contribute to reef resilience capacity building, responding to climate change training, and MPA design









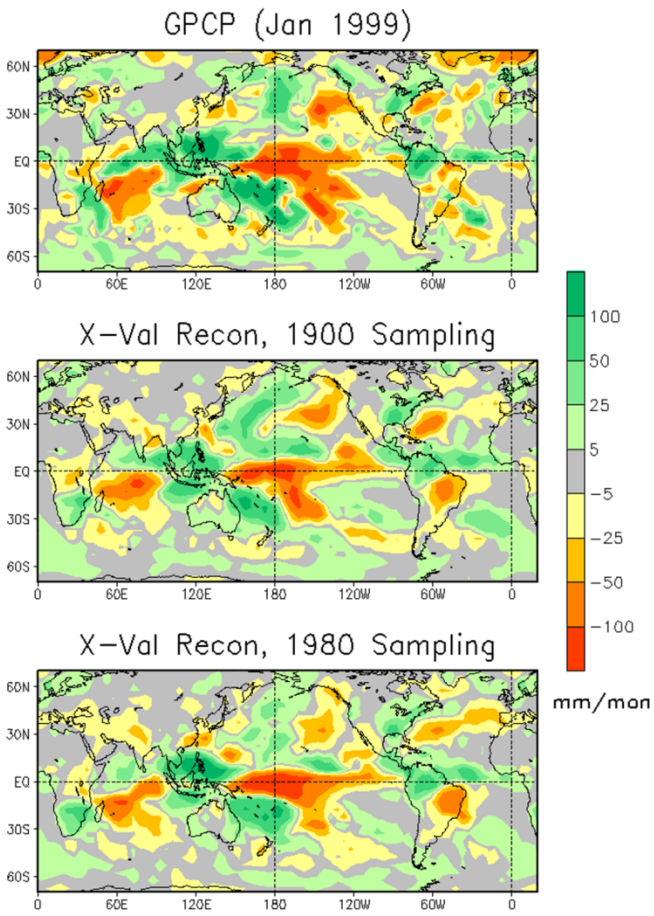


Using Satellite Data to Reconstruct Variations in Times with No Satellites

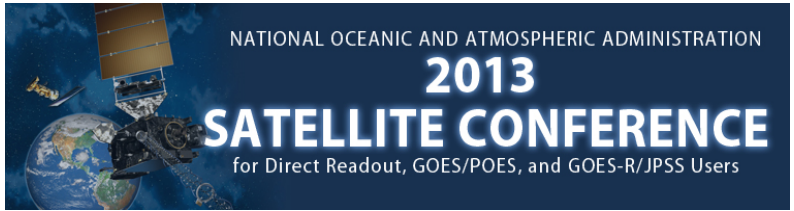
Thomas Smith[1,2], Phillip Arkin[2], Li Ren[2], Sam Shen[3]

1. NOAA/NESDIS/STAR/CoRP/SCSB, 2. ESSIC/CICS, University of Maryland, 3. San Diego State University

- Satellite-based analyses resolve global variations for a limited period
- Climate studies often need longer analyses
- Reconstructions use satellite-based statistics and in situ data to extend analyses
- Statistical testing shows the reliability of historical reconstruction



GPCP and cross-validation reconstructions using historical sampling for two years.

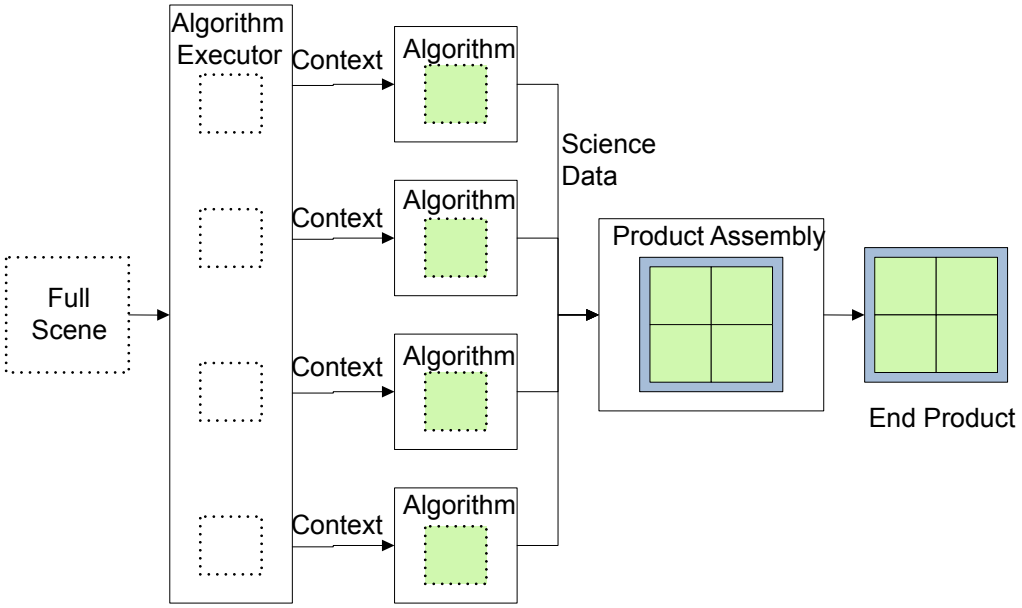


End-to-End Design, Development and Testing of GOES-R Level 1 and 2 Algorithms

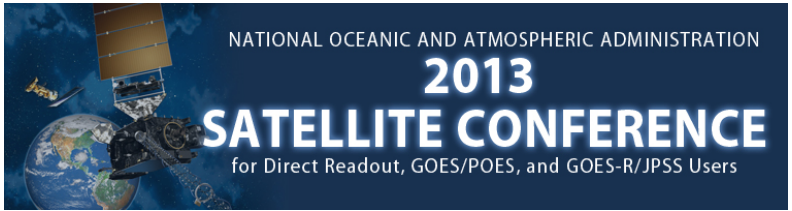
Alex Werbos
Atmospheric and Environmental Research
Lexington, MA

Advances in ground system design are required to meet the diverse needs of the GOES-R program

- Flexible data interfaces that allow algorithms to be seamlessly transitioned from development/testing to operations
- Algorithms that are parameterized in execution area allowing flexibility in computational load-balancing



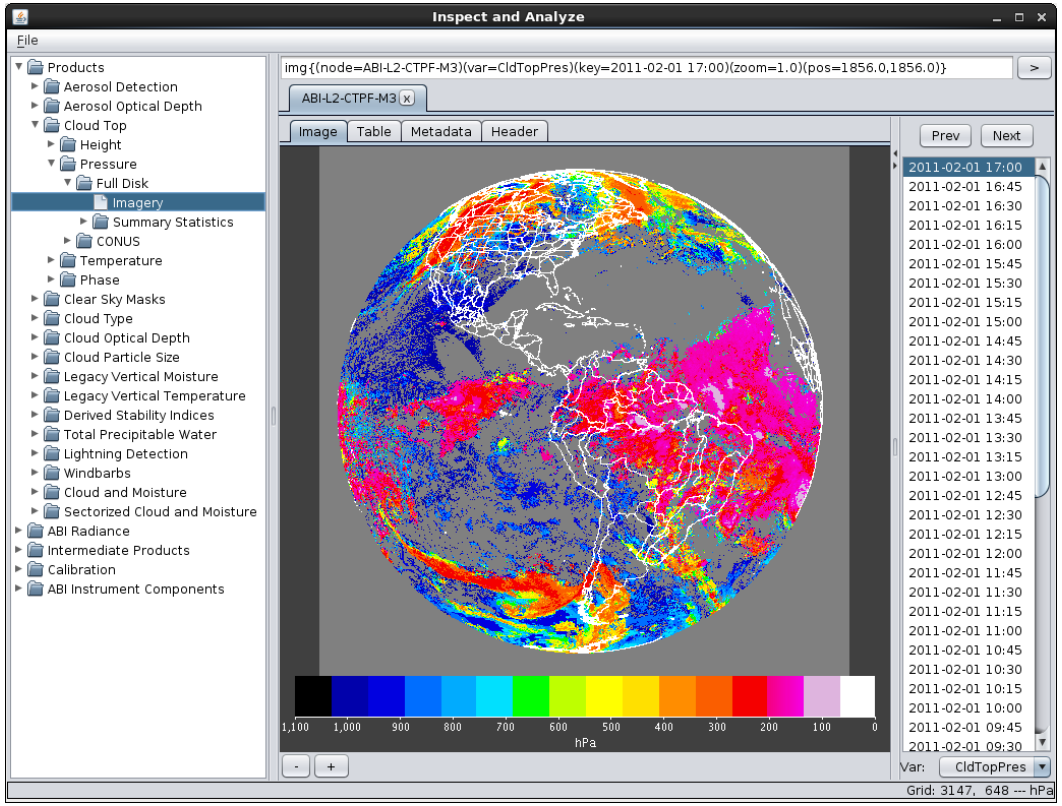
Algorithm Execution Parameterization



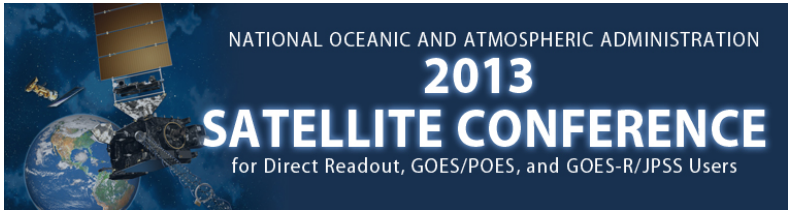
Design and Development of the GOES-R Inspect & Analyze Client Visualization Application

Jordan Bentley
Atmospheric and Environmental Research
Lexington, MA

"Inspect & Analyze" provides an operational, graphics-based decision aid to continuously monitor the quality of the GOES-R products, instrument calibration data, and product performance metrics in the real-time environment.



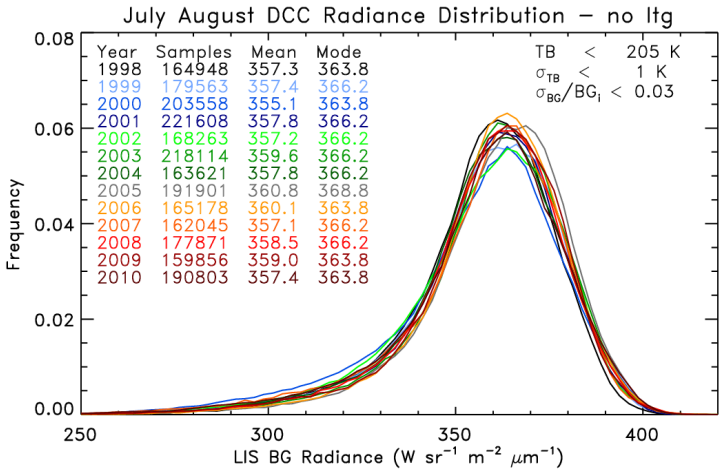
Inspect & Analyze Graphical User Interface

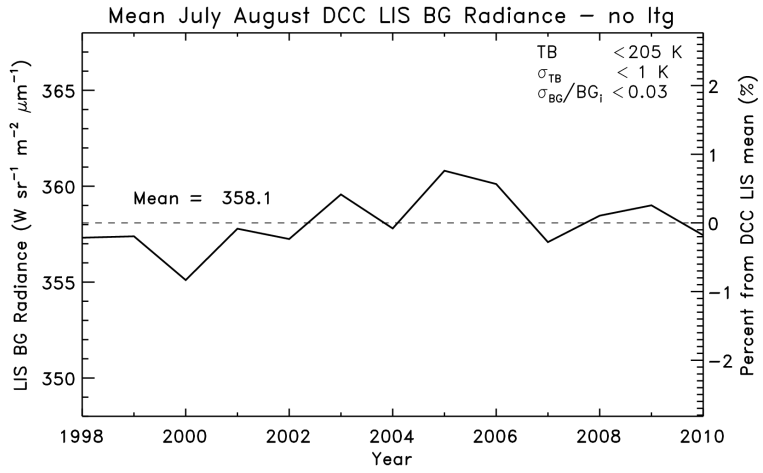


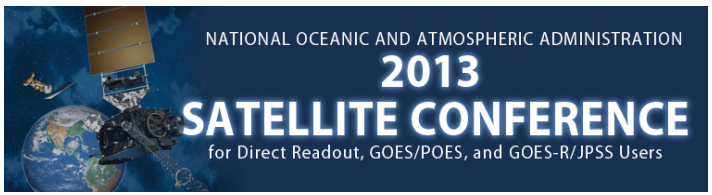
Investigating the use of Deep Convective Clouds to monitor on-orbit performance of the Geostationary Lightning Mapper (GLM) using Lightning Imaging Sensor (LIS) measurements

D. E. Buechler, H.J. Christian, W.J. Koshak, S.J. Goodman
University of Alabama Huntsville (UAH)

- Deep Convective Clouds are used as invariant calibration targets
  - LIS on TRMM is similar in design to GLM
  - DCCs identified using VIRS 11 μm observations
  - The radiance of LIS DCCs exhibit no discernible degradation from 1998-2010
  - Less than 0.8% yearly deviation from mean LIS DCC radiance



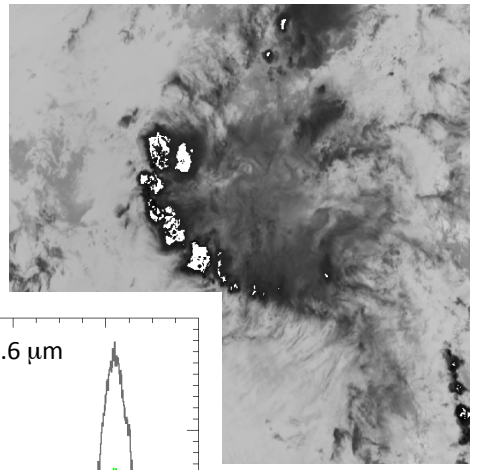




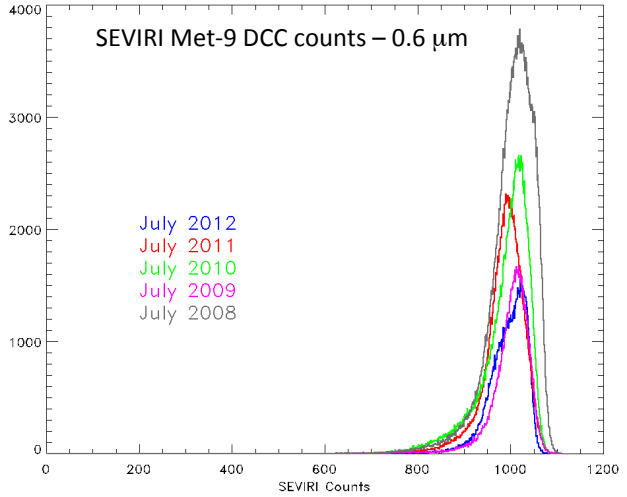
Inter-calibration of the SEVIRI VIS0.6 channel with MODIS Aqua, using Deep Convective Clouds as transfer targets

Sébastien C. Wagner, T. Hewison
EUMETSAT
Darmstadt, Germany

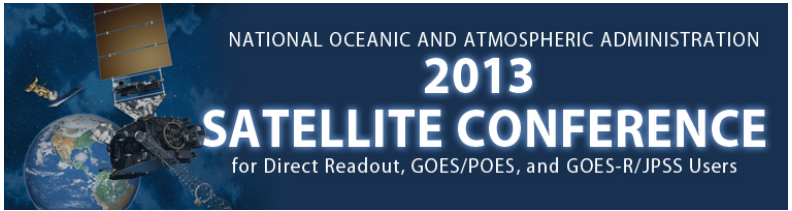
SEVIRI Met-9 (01/04/2010 – 12:57)



1. DCC identification
   - Time: for MET-9 (0.0 Lat / 0.0 Lon) ➔ 11:00 < t < 14:00
   - Geometry:
     - Lat / Lon < ±20.0 degrees of SSP
     - SZA and VZA < 40 degrees
   - DCC identification ⇒ $T_b(11\mu m)$ <205K
   - Spatial homogeneity (over boxes of pixels in the "11 μm" BT + in the "0.6 μm" radiances)
2. Conversion from counts to overhead sun
   - Use of an Angular Distribution Model (Hu et al. 2004)
3. Spectral band Adjustment for MODIS, SEVIRI SRFs
   - Use of correction factors as given by the GSICS ATBD (Doelling et al, 2011)
4. Construction of monthly Probability Density Functions
5. Derivation of the gain from the calibration equation:



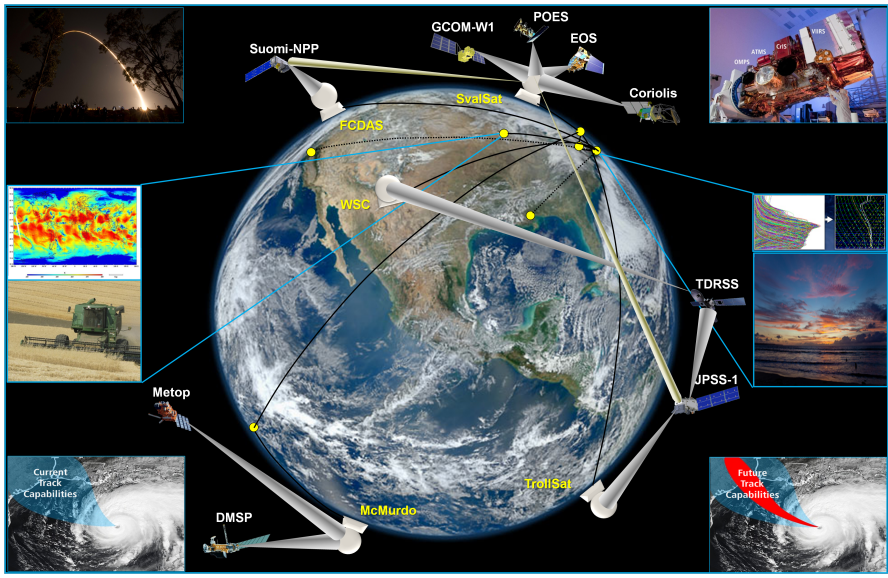
$$Aqua_{Radiance}^{Equiv.Nadir} \cdot SBAF_{MET9/Aqua} = Gain_{Met9} \cdot \left(K_{Met9}^{Equiv.Nadir} - K_0\right)$$



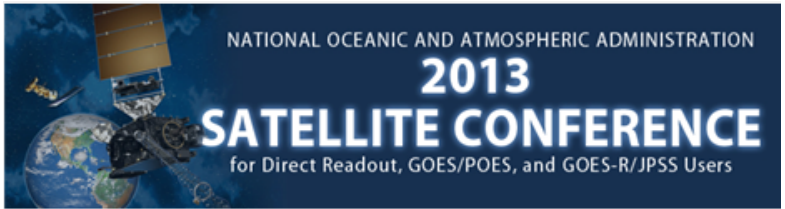
Joint Polar Satellite System (JPSS)
Common Ground System (CGS) Multimission Support

Michael Jamilkowski, Raytheon JPSS CGS Customer Liaison, Greenbelt MD
Shawn W. Miller, Raytheon JPSS CGS Chief Architect, and Kerry Grant, JPSS CGS Chief Scientist, Aurora CO

- The JPSS Common Ground System (CGS) currently supports and/or manages nine (9) environmental satellite missions + NSF McMurdo communications
  - CGS will support/manage at least 12 future missions
  - CGS's flexible architecture allows for multimission capabilities that offer significant opportunities for cost reduction and improved information integration across missions



The CGS Multi-Mission Operations Concept



Near-Real-Time Proxy ABI Products for GOES-R User Readiness

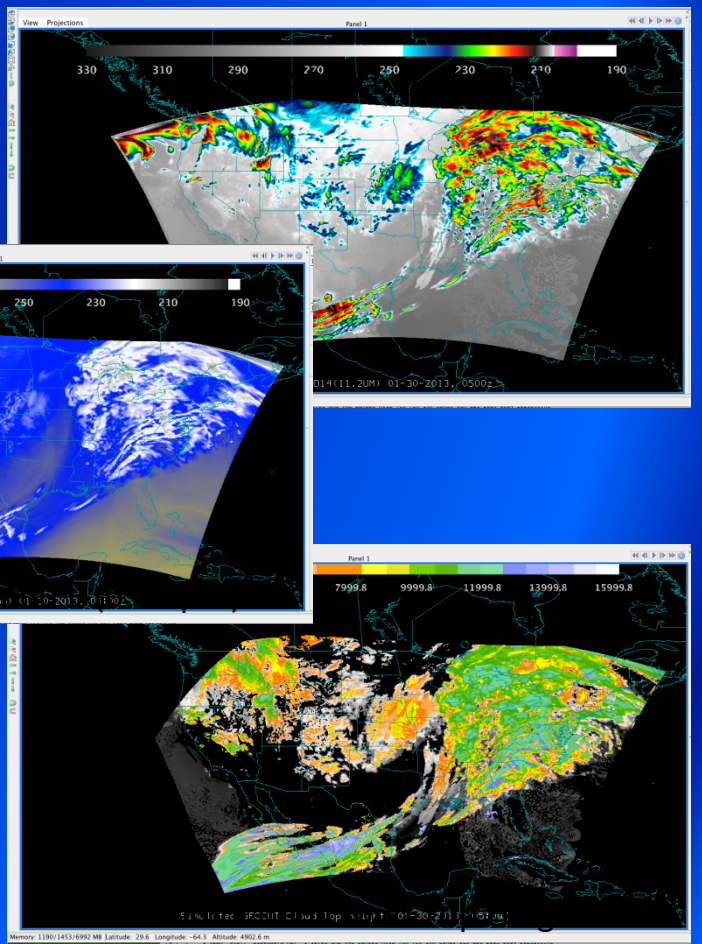
T. Greenwald, B. Pierce*, T. Schaack, J. Otkin, K. Bah, J. Davies, J. Sieglaff, A. Lenzen, J. Nelson, M. Rogal, A. Huang
CIMSS, University of Wisconsin-Madison, WI; *NOAA/NESDIS ORA ASPB

CIMSS is producing simulated ABI products in near-real-time over CONUS from WRF-Chem model forecasts and the CRTM to support Proving Ground activities by making these products available within AWIPS

Current Products:

- ABI 16-band imagery
- Cloud mask, cloud top height & pressure (with Andy Heidinger, AWG Cloud lead)
- Temp/moisture profiles and more …

Sample proxy ABI products for the Jan 29-30, 2013 tornado outbreak



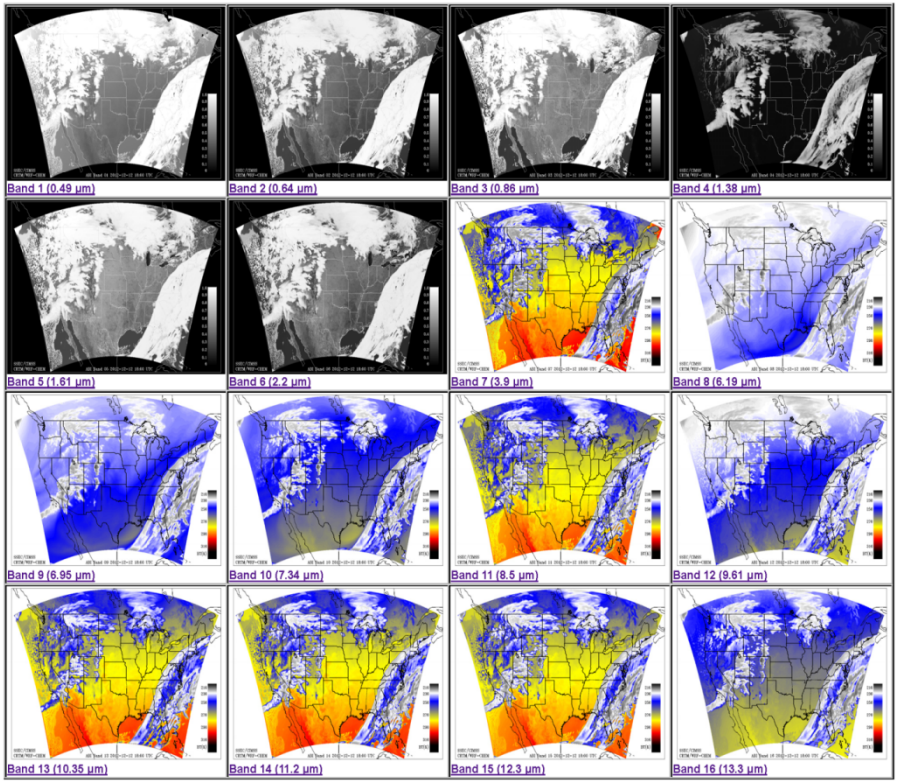
Near-Real-Time validation of simulated GOES-R ABI radiances and derived products, using the WRF-Chem model forecast over CONUS for all 16 ABI bands

Kaba Bah[1], Tom Greenwald[1], Brad Pierce[2], Allen Lenzen[1], Marek Rogal[1], Jim Nelson[1], Jason Otkin[1], Todd Schaack[1], Jim Davies[1], Eva Borbas[1], Justin Sieglaff[1] and Hung-Lung Huang[1]

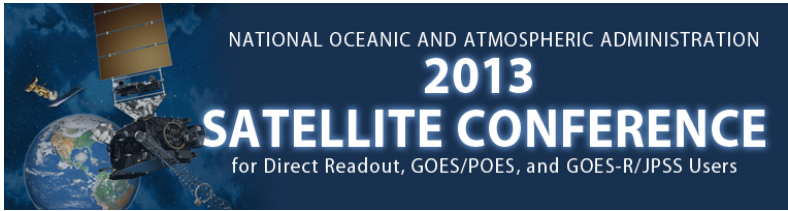
[1]Cooperative Institute for Meteorological Satellite Studies (CIMSS), Space Science and Engineering Center (SSEC), University of Wisconsin – Madison, Wisconsin 53706, U.S.

[2]NOAA/NESDIS Office of Research and Applications, Advanced Satellite Products Branch (ASPB), Madison, WI, 53706, U.S.A.

- This poster summarizes our efforts to provide and validate near-real-time proxy data for all 16 ABI bands.
  - We are supporting GOES-R PG activities through development of a WRF-CHEM/CRTM based framework for generation of real-time proxy radiances for all 16 GOES-R ABI bands.
  - The hourly simulated radiances are delivered daily to AIT in ABI Fixed Grid Format, compatible with the GOES-R Re-Broadcast Level 1b data.
  - We have developed a near-real-time validation system for verification of model simulated ABI radiances and simulated derived products using GOES sounder data.
  - The simulated ABI derived products are generated using the GEOCAT framework and distributed in HDF format



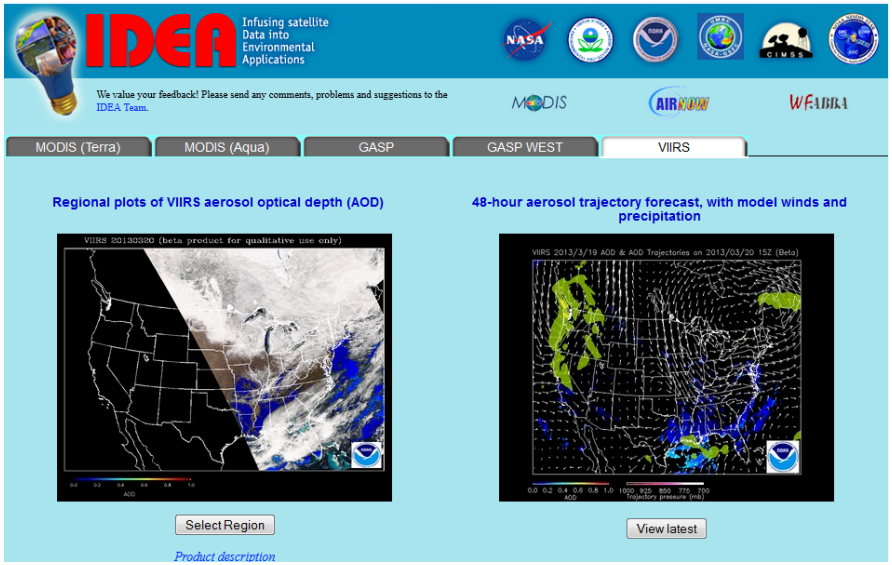
Simulated ABI (Advanced Baseline Imager) data



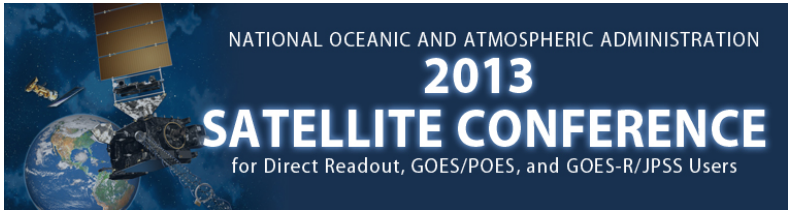
Near-real-time VIIRS Aerosol Imagery over CONUS for Air Quality Monitoring and Forecasting Applications

Hai Zhang[1], Shobha Kondragunta[2], Hongqing Liu[1], Pubu Ciren[1]
1. IMSG; 2. NOAA/NESDIS/STAR

- Near-real-time CONUS VIIRS imagery is available on IDEA (Infusing satellite Data into Environmental Applications) site
- Products include:
  - VIIRS AOT, RGB, dust mask, fire hotspots images
  - KML format for Google Earth
  - 48-hour forward trajectories
- Validation shows that VIIRS AOT has similar accuracy as MODIS AOT over CONUS



https://www.star.nesdis.noaa.gov/smcd/spb/aq/index_viirs.php?product_id=4

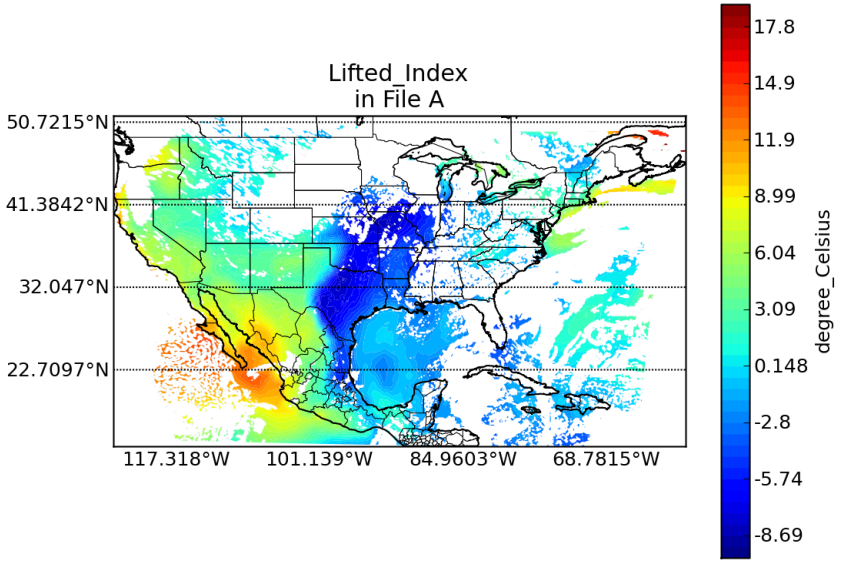


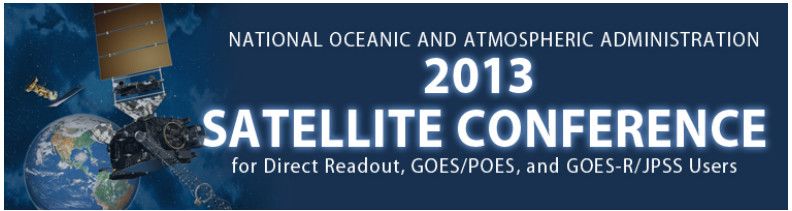
GRAFIIR and JAFIIR – Efficient End-to-End Semi-Automated Algorithm Performance Analysis and Implementation Verification Systems

Mathew Gunshor, Hong Zhang, Eva Schiffer, Ray Garcia, and Allen Huang

Cooperative Institute for Meteorological Satellite Studies (CIMSS), Space Science and Engineering Center (SSEC), University of Wisconsin – Madison, Wisconsin

- GRAFIIR and JAFIIR measure the effect of instrument effects on radiances and products
  - GRAFIIR has responded to 9 waiver/ deviation requests to date.
  - Glance: an efficient comparison analysis tool built to assess and evaluate satellite data and product output.
  - JAFIIR is the newly developing JPSS sister-program to GOES-R's GRAFIIR.

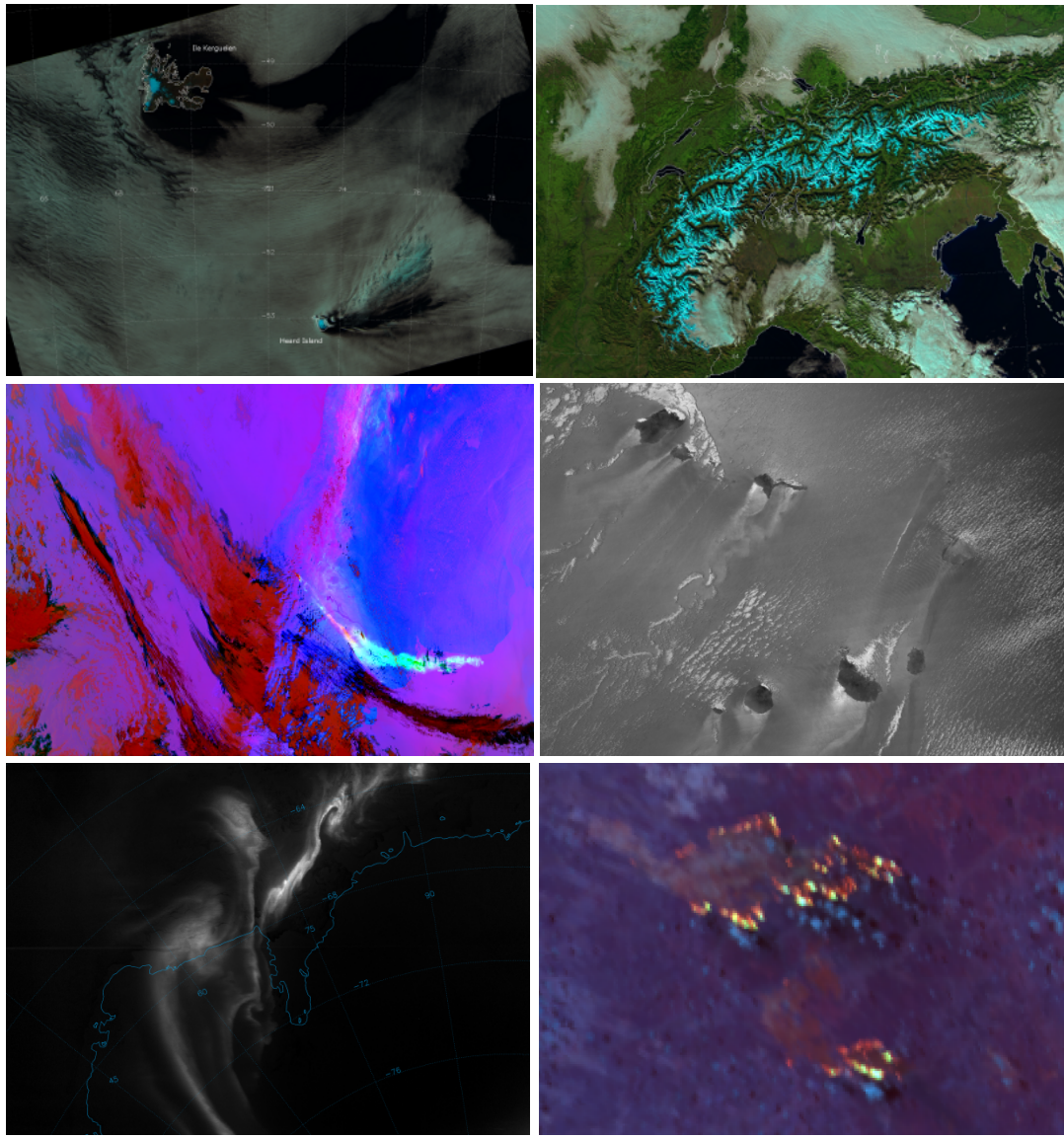


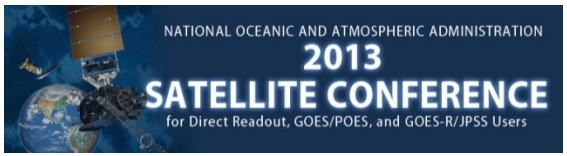


VIIRS Imagery: Applications and Outreach at CIRA

C. Seaman[1], D. Hillger[2], and S. Miller[1]
[1]CIRA/Colorado State University [2]NOAA/NESDIS/StAR/RAMMB

- Applications of VIIRS imagery:
  - Severe weather, tropical cyclones
  - Smoke, haze, dust, volcanic ash
  - Fires, floods, vegetation health
  - Auroras, lightning, power outages, oil/gas flares
  - Snow/ice discrimination, cloud phase, monitoring glaciers/ice sheets
  - Water quality/turbidity, ocean currents
  - And many more...
- Outreach:
  - Developed new RGB imagery products
  - VIIRS Imagery Team blog
  - *BAMS* articles
- Goals:
  - Promote high quality VIIRS imagery
  - Investigate new uses of VIIRS
  - Get people excited about science!

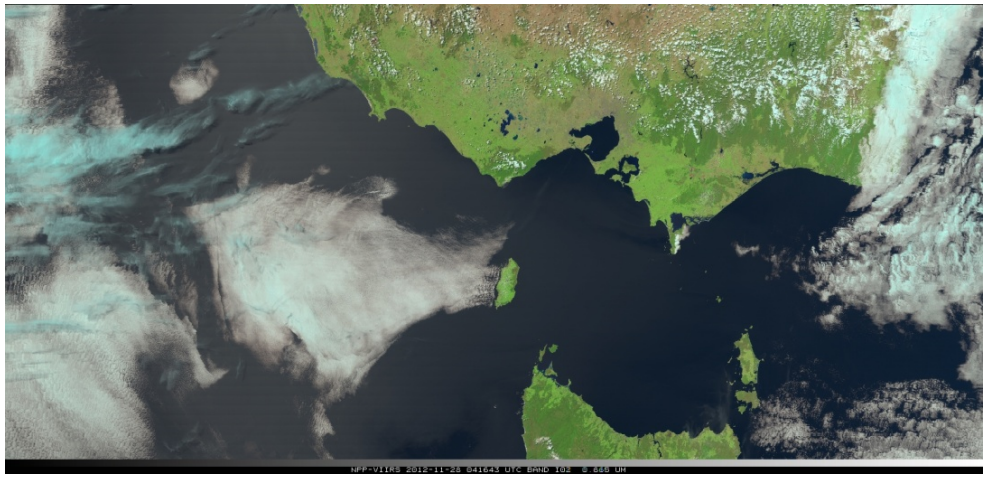


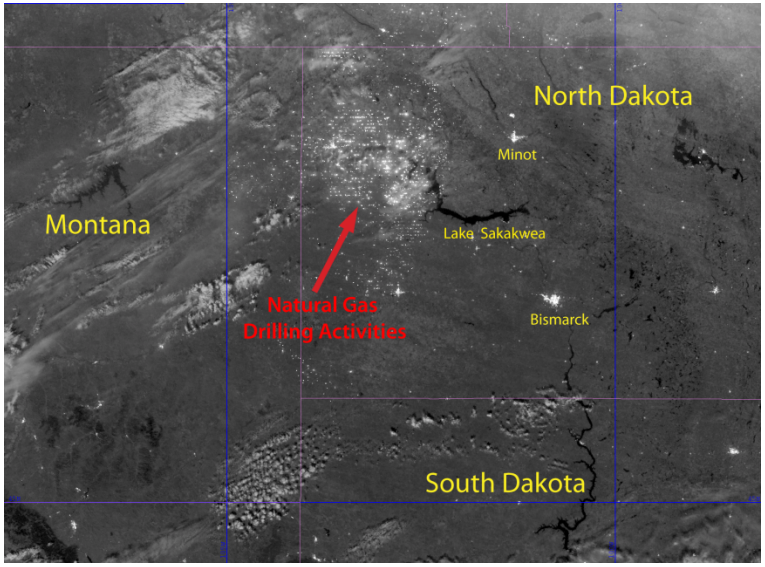


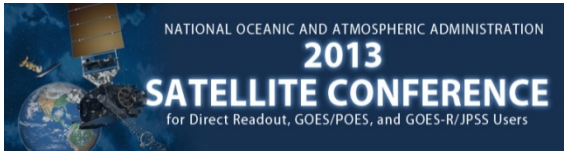
Suomi NPP VIIRS Imagery after 1 Year

D. Hillger[1], T. Kopp[2], S. Miller[3], D. Lindsey[1], and C. Seaman[2]
[1]NOAA/NESDIS/StAR/RAMMB [2]The Aerospace Corp. [3]CIRA/Colorado State University

- One year+ since Suomi NPP launch (October 2011)
- VIIRS EDR Imagery (and Visualization) Team:
  - NOAA/STAR and many others
- Image products:
  - 22 VIIRS M-bands (750 m) [6 EDRs]
  - 5 VIIRS I-bands (375 m) [5 EDRs]
  - DNB/NCC [SDR/EDR] Imagery
- Imagery maturity levels:
  - Non-NCC EDR Imagery at "Provisional" level
  - NCC Imagery at "Beta" level; still resolving "issues"
- VIIRS displayed using McIDAS-V, McIDAS-X, and IDL
- *BAMS* article (accepted for 2013 publication) and *JGR* manuscript (to be submitted) on VIIRS Imagery







Ozone Instrument Calibration and EDR Product Validation with STAR ICVS

Wei Yu[3], Larry Flynn[1], Jianguo Niu[2], Eric Beach[3], F. Wu[1], Zhihua Zhang[3], Hao Yan[3]

[1]NOAA/NESDIS/STAR, [2] ERT Inc. for NOAA, [3] IMSG Inc. for NOAA

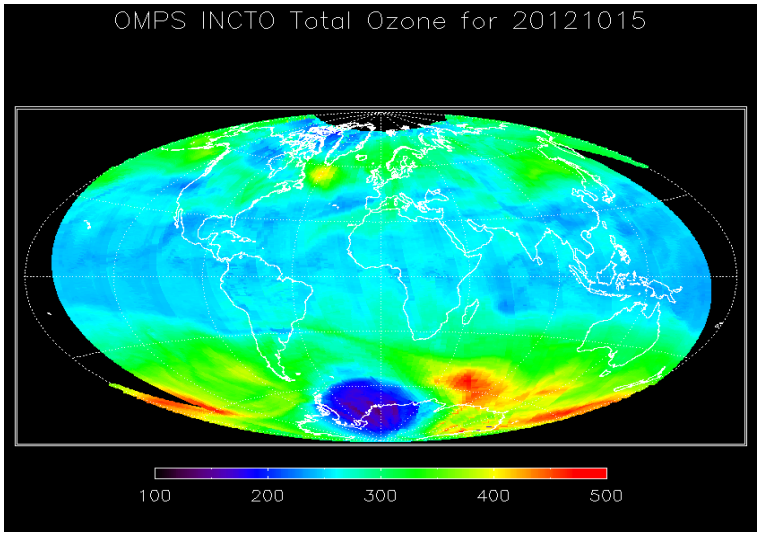
1.Introduction

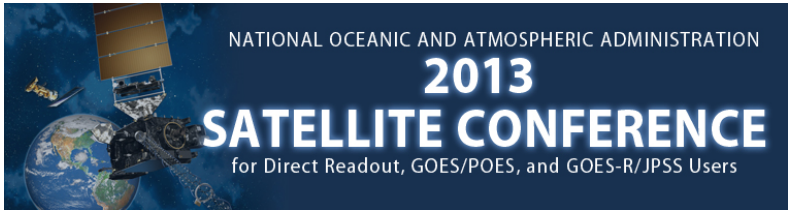
2.Objectives

3.Monitoring S-NPP OMPS Performance and Products

4. Monitoring NOAA SBUV/2 and Metop-B Performance and Products

5. Conclusion.

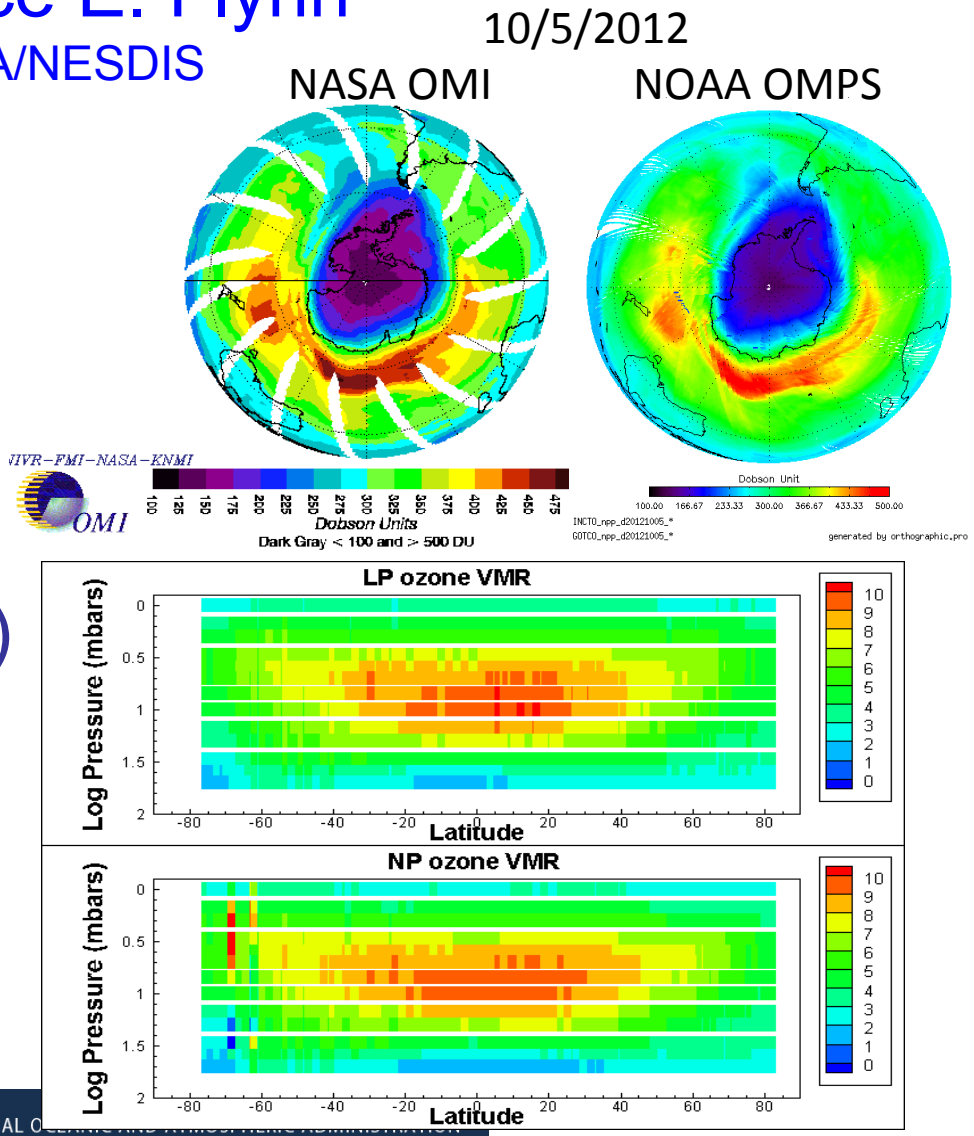




Performance of Products from the OMPS on S-NPP

Lawrence E. Flynn
NOAA/NESDIS

- Nadir Mapper (IDPS)
  - Daily maps of total ozone, reflectivity and aerosol
- Nadir Profiler (IDPS)
  - Ozone profiles along the orbital track
- Limb Profiler (NDE future)
  - High vertical resolution ozone and aerosol profiles
- Comparisons to ground-based and satellite data show good performance



NP & LP for 9/6/2012

Thinking inside the grid: from multi-instrument satellite data to uniform space-time information

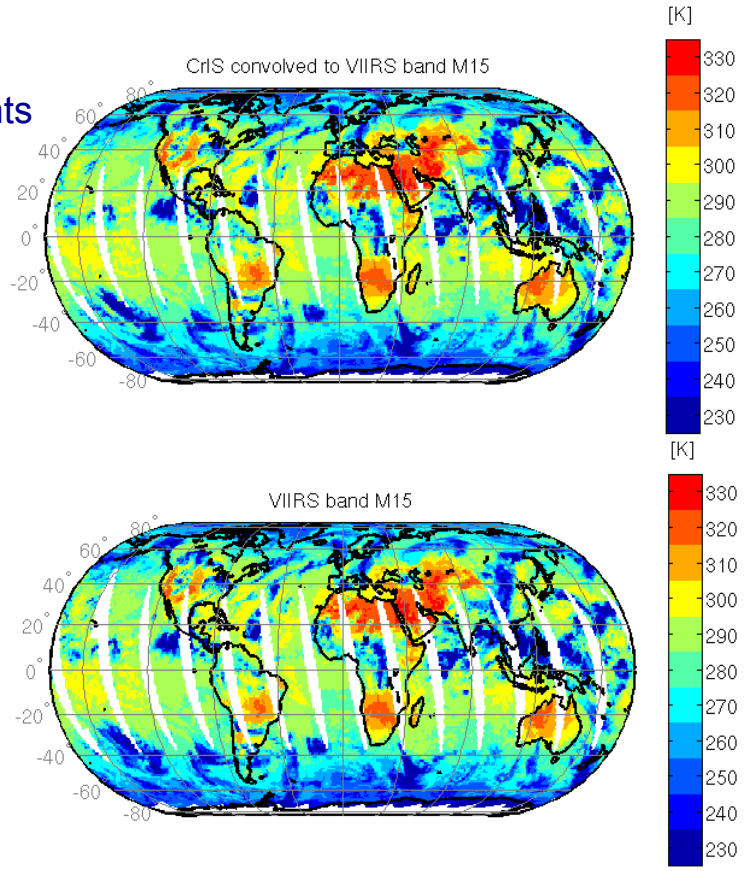
Nadia Smith[1], Paul Menzel[1], Elisabeth Weisz[1], Bryan Baum[1]
Cooperative Institute for Meteorological Satellite Studies (CIMSS)
University of Wisconsin-Madison

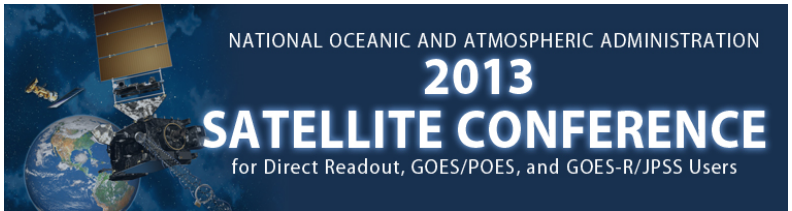
Space-Time Gridding

Characterizing the signal-to-noise ratio of instrument measurements mapped to a uniform equal-angle space-time domain

- Multi-instrument data analysis
  - Imager: Suomi-NPP Visible Infrared Imaging Radiometer Suite (VIIRS)
  - Sounder: Suomi-NPP Cross-track Infrared Sounder (CrIS)
- Comparison of Brightness Temperature measurements
  - Infrared window region (~11 micron)
  - Sounder spectra convolved to Imager band (M15)
  - Calculate bias and root-mean-square-error (RMSE) at different spatial scales, from 0.25 to 2.0 degree.

The lessons learned here will apply directly to the aggregation of geophysical retrieved parameters (Level 2) into a global gridded product (Level 3)



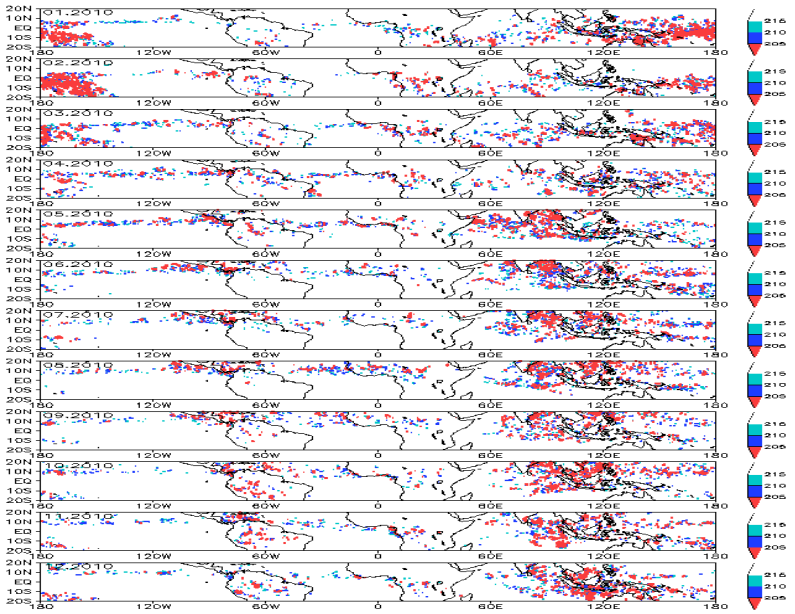


Application of DCC targets with GOME-2 observation for vicarious calibration of visible channels of NOAA GOES instruments

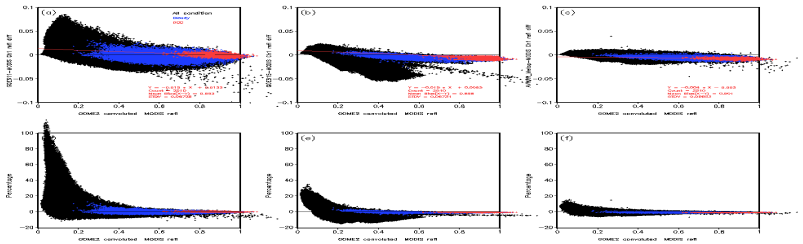
Haifeng Qian[1], Xiangqian Wu[2], Fangfang Yu[3] and Trevor Beck[2]

1: I.M. Systems Group, Inc., Rockville, MD; 2: NOAA/NESDIS/STAR, Camp Spring, MD; 3: ERT, Inc., Columbia, MD

- The study shows that DCC from GOME-2 hyper-spectral observation is reliable as an invariant target, and quantify that the contribution due to SFRs difference of GOES to the bias can been narrowed to <1%.
  - Characterized DCC temporal and spatial variation, and investigate the spectral calibration uncertainty with DCC calibration to provide insights to improve GOES SFR accuracy.
  - DCC from GOME-2 hyper-spectral observation was suggested reliable as an invariant target.
  - Quantified the contribution due to SFRs difference to the bias can been narrowed to <1% with a small increasing tendency with reflectance in DCC pixels.
  - Found lower O_2 absorption may offsets the contribution from the wider right tailor of GOES-11 SRF, might resulting in that the contribution from GOES-11 SRF is very close to MODIS SRF.
  - Found a lightly decreasing tendency of the DCC reflectance at GOME-2 off nadir, which implies somewhat influence of the satellite viewing angle on the morning sunshine.



Monthly geographical distribution of DCC over 0.4° x 0.4° grids in 2010. DCCs are indicated in red.



Scatter diagram of GOME-2 convoluted MODIS reflectance vs. the convoluted reflectance difference between the SFRs and MODIS

Satellite Training Activities: What's new and what's being recycled?

T 72

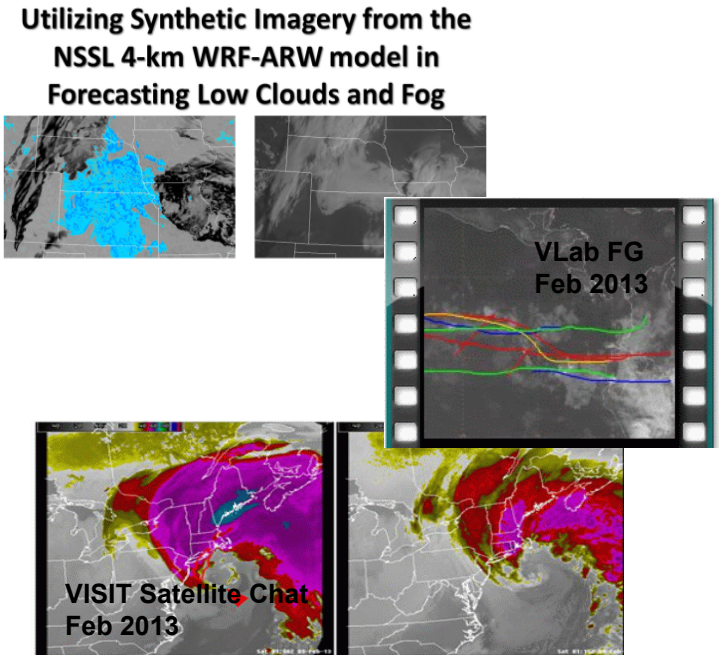
VISIT

SHyMet

VLab

Bernie Connell, D. Bikos, E. Szoke, S. Bachmeier, S. Lindstrom, A. Mostek, M. Davison, K. Caesar, V. Castro, L. Veeck

- Virtual Monthly Satellite Chats
- New GOES-R training
- WMO Satellite Competence Requirements
- On the Horizon: SHyMet GOES-R instruments and products



Modules and recordings of virtual sessions.

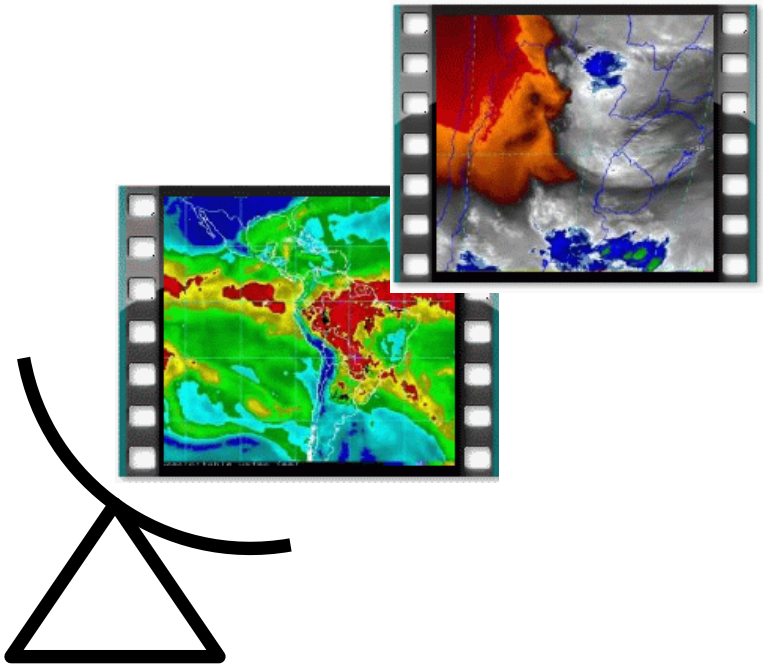
Training Videos Through GEONETCast? What Will They Think of Next!

T 73

Bernie Connell, P. Seymour, K. Caesar, and L. Veeck

GEONETCast Americas is the West Hemisphere contribution to a global environmental data disseminations system

- Training to accompany products
- Near-real time video clips from virtual Focus Group sessions
- Repurpose training materials



Training via GEONETCast Americas Broadcast

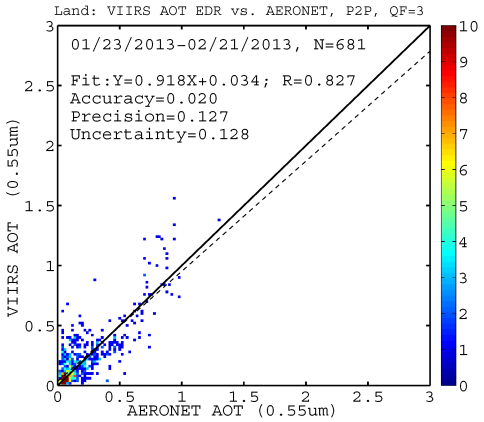
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
2013
SATELLITE CONFERENCE
for Direct Readout, GOES/POES, and GOES-R/JPSS Users

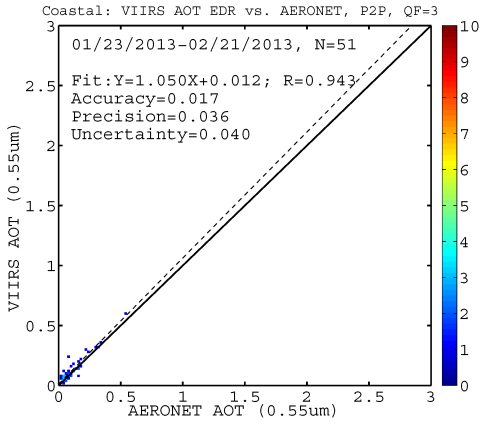
Validation of Suomi NPP/VIIRS Operational Aerosol Products through Multi-Sensor Intercomparisions

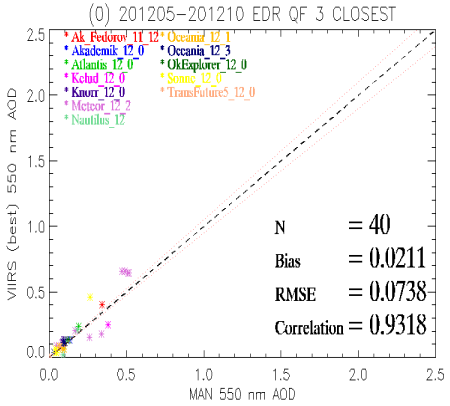
Huang , Jingfeng*, I. Laszlo*, S. Kondragunta*, H. Liu*, H-C. Huang*, L. Remer, H. Zhang*, P. Ciren*,H. Cronk, S. Jackson, C. Hsu, B. Holben, A. M. Sayer, M. Oo, R. E. Holz, E. J. Hyer, L. Munchak, R. Levy, S. Mattoo, M. Petrenko, C. Ichoku, R. Kahn, A. Smirnov

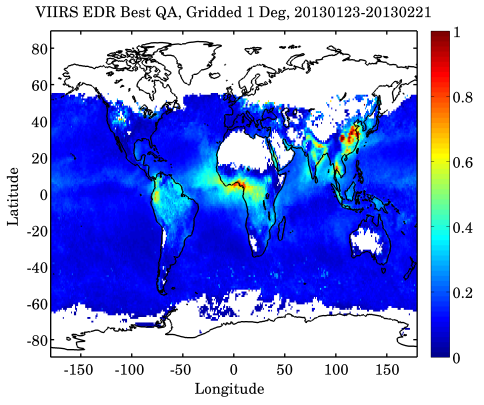
*NOAA/NESDIS Center for Satellite Applications and Research (STAR), College Park, MD

- Suomi NPP/VIIRS provides the aerosol Environment Data Records (EDRs) of:
  - ❑ Aerosol optical thickness (AOT) (6km at nadir, released as Beta from 05/02/2012)
  - ❑ Aerosol particle size parameter (APSP) EDR (Angstrom Exponent (AE) herein, 6km at nadir, released as Beta from 05/02/2012, not recommended over land)
  - ❑ Suspended matter (SM) EDR (750m at nadir, not yet released)
- Through the intercomparisons with multi-sensor products(MODIS, MISR, CALIPSO, AERONET, and MAN), the VIIRS Aerosol EDRs demonstrate great potential in global aerosol monitoring, continuing their heritage satellite products but with better spatial resolution over a wide spectral range and increased daily spatial coverage.

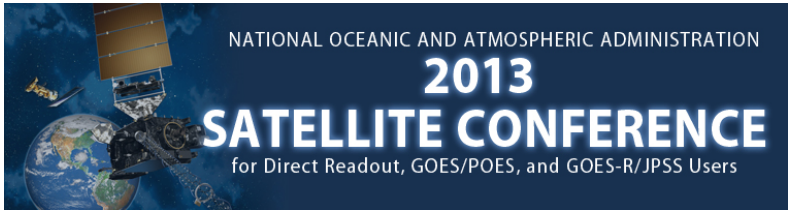








- The VIIRS aerosol EDRs are available form NOAA's Comprehensive Large Array-data Stewardship System (CLASS) (http://www.class.ngdc.noaa.gov).
- VIIRS Aerosol Products Users' guide: http://www.star.nesdis.noaa.gov/jpss/ATBD.php#S126472
- VIIRS Aerosol Products README: http://www.nsof.class.noaa.gov/saa/products/welcome

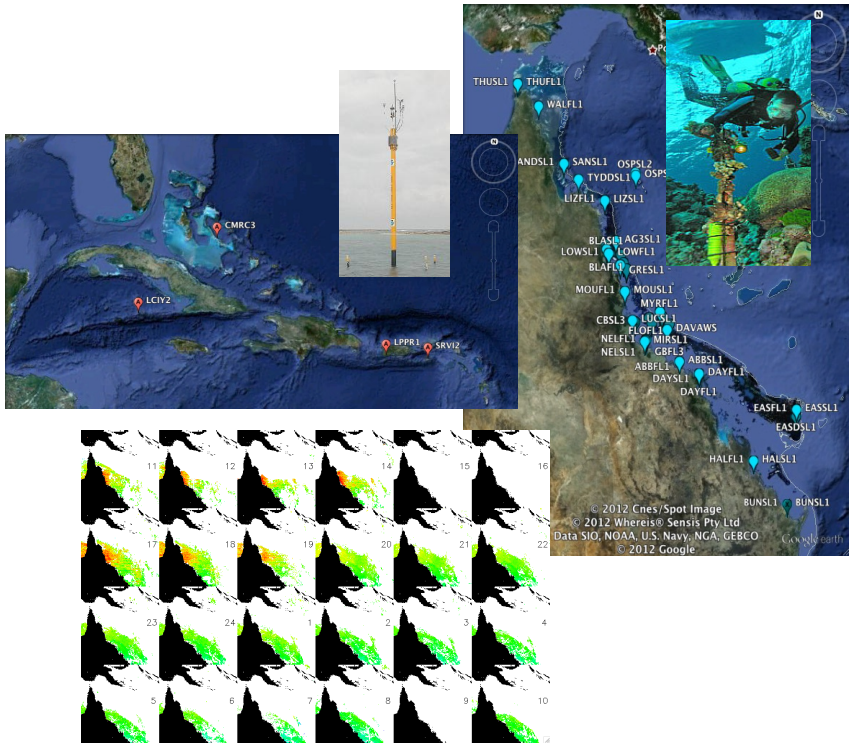


Acknowledgement:
Supports from S-NPP and JPSS Programs, MODIS, MISR, CALIPSO, AERONET, MAN, and MAPSS teams are greatly appreciated.

Coastal Diurnal Warming Study through In-situ and Satellite data

Xiaofang, Peter Minnett, Jim Hendee, Carrie Manfrino, Ray Berkelmans, Helen Beggs

- Diurnal warming is important for the validation of SST against in-situ measurements at buoy depths and satellite data blending. For coastal regions, the phenomenon is also linked to coral bleaching and better management of coral reef health
- Two in-situ coastal shallow temperature datasets located at Caribbean and Great Barrier Reef were analyzed for diurnal warming characters and relationships with the coastal environments.
- The warming character include the warming amplitudes, timing, vertical profiles, seasonality.
- The environmental parameters being explored include the influence of tide, local geographic features as well as well-studied ones including wind and solar radiation.



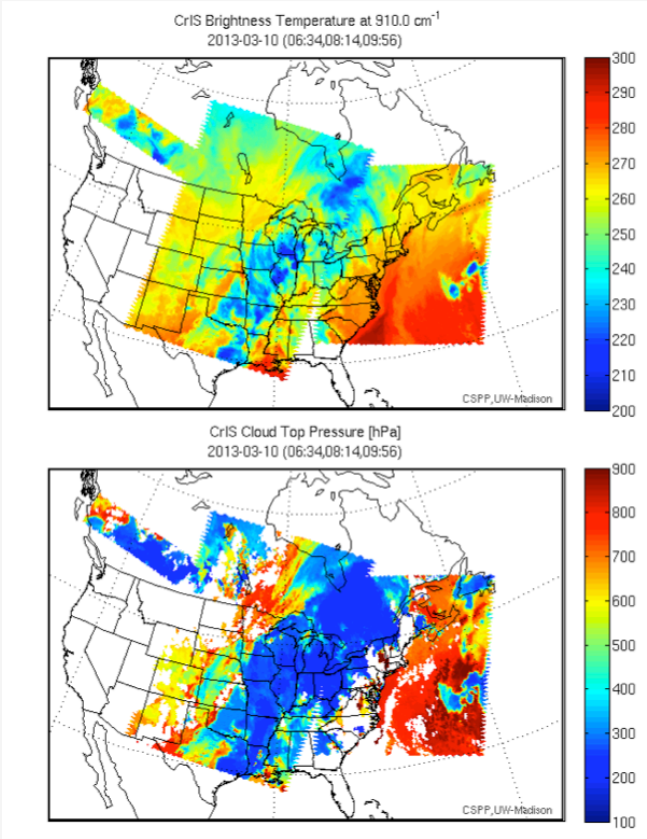
In addition, hourly SST data from geostationary satellite MTSAT1R data have been analyzed for diurnal warming signal at the Great Barrier Reef region. Preliminary results have shown 5 out of 32 days have clear afternoon warming

Community Satellite Processing Package (CSPP)
Cross-track Infrared Sounder (CrIS) Dual-Regression Retrievals and Applications

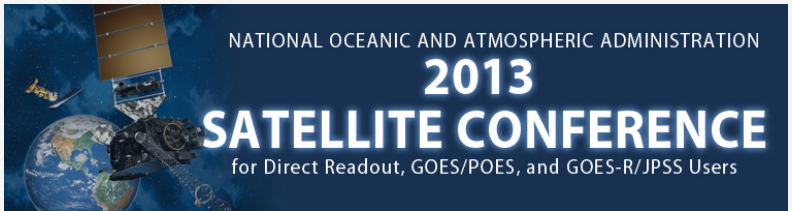
Elisabeth Weisz
Cooperative Institute for Meteorological Satellite Studies (CIMSS)
University of Wisconsin-Madison

Suomi-NPP CrIS

- Retrieval Products
  - Temperature, humidity and ozone profiles, surface and cloud parameters, at single FOV resolution
- Retrieval Applications
  - Direct Broadcast (regional real-time)
  - Quantitative interpretation of satellite imagery
  - Time tendencies of atmospheric variables when used with AIRS and IASI
  - Global and long-time climate trend studies
  - NWP and forecasts (anticipated)



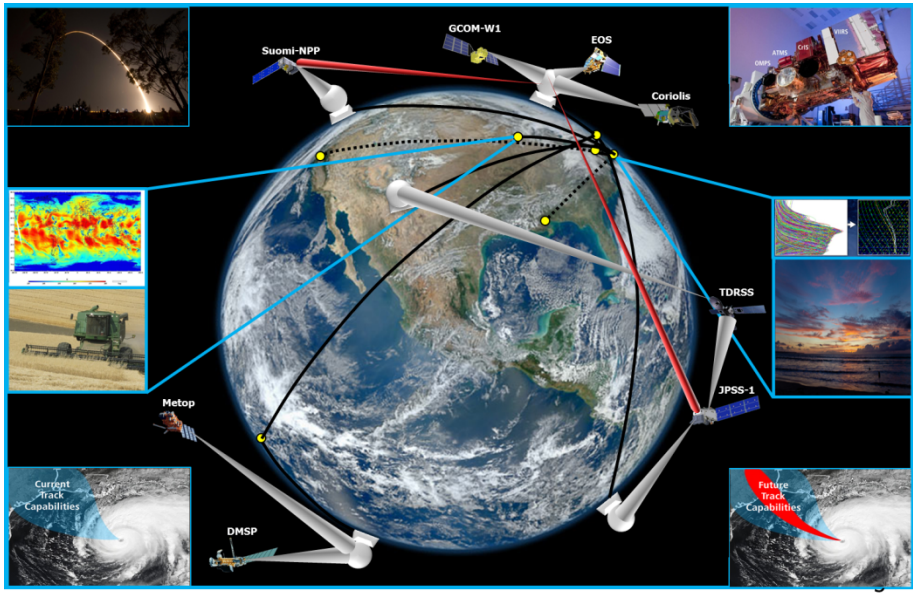
Direct Broadcast CrIS Brightness Temperatures and Cloud Top Pressure Retrievals



JPSS Common Ground System (CGS) Overview and Evolution

Shawn Miller, Michael Jamilkowski, and Kerry Grant
Raytheon

- The CGS supports multiple missions today, and more will be added in the future
  - Mission management, command and control, data acquisition and routing, and data processing and distribution
  - Architecture updates are leveraging Suomi-NPP lessons learned
  - Improving operational robustness (COOP, reliable protocols, modularity)



JPSS CGS Concept of Operations

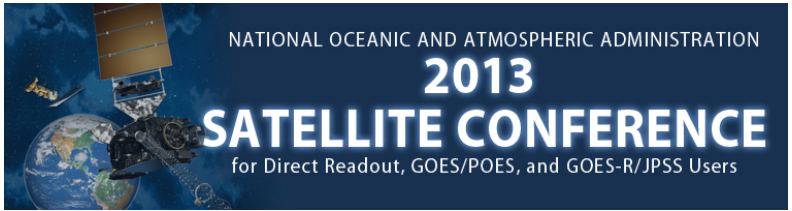
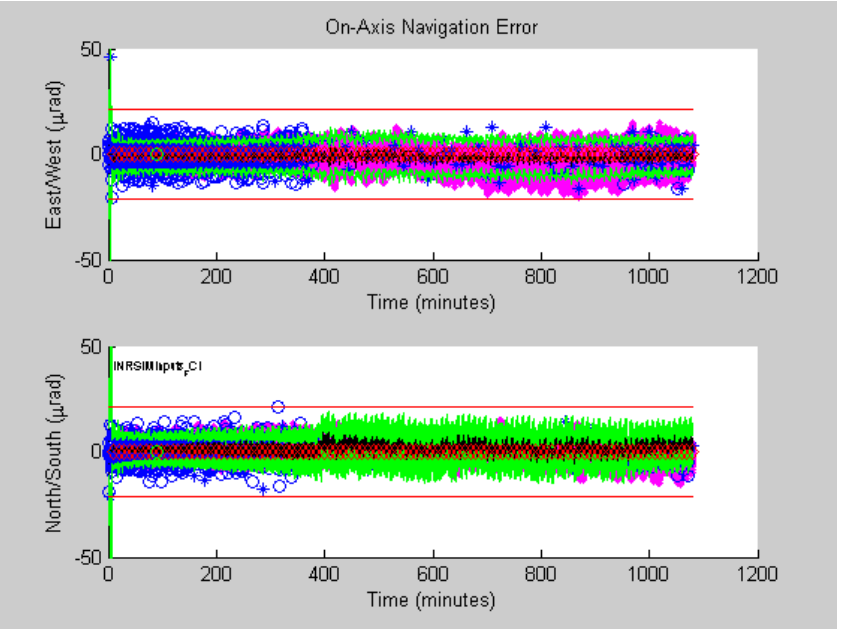
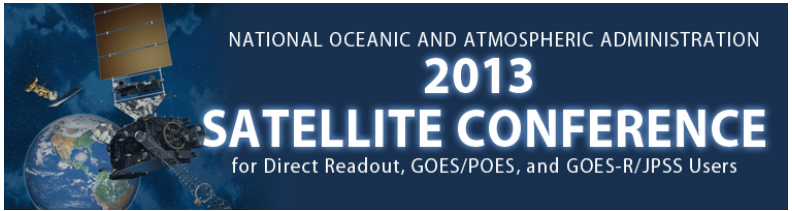


Image Navigation and Registration for the next Generation Geostationary Weather Satellites

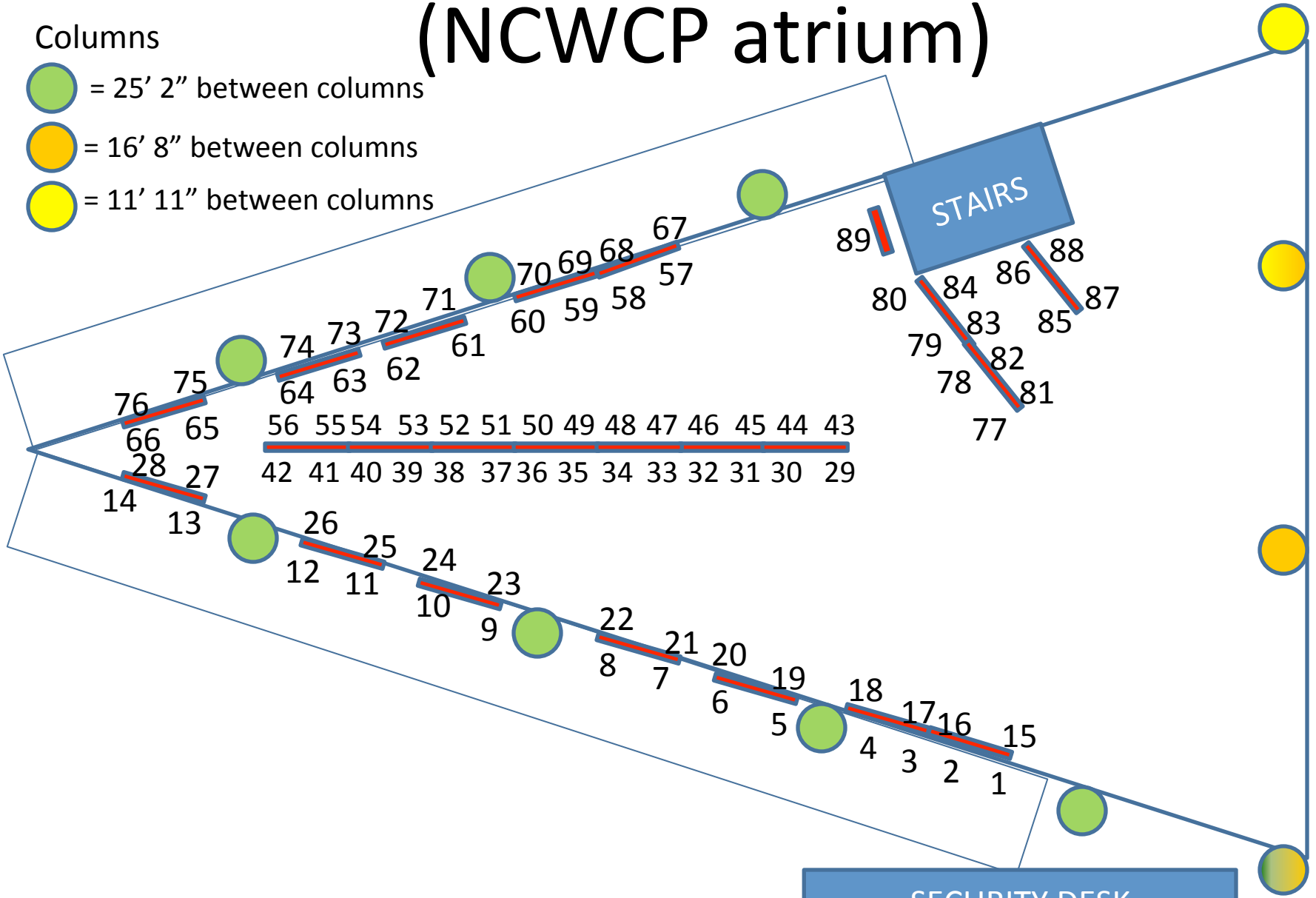
Houria Madani[1], Jim Carr[1], Francis Olivier[2]
Carr Astronautics, 6404 Ivy Lane Ste. 333 – Greenbelt, Maryland, U.S.A.
Thales-Alenia Space, 100 bvd du Midi, 06156 Cannes la Bocca Cedex, France

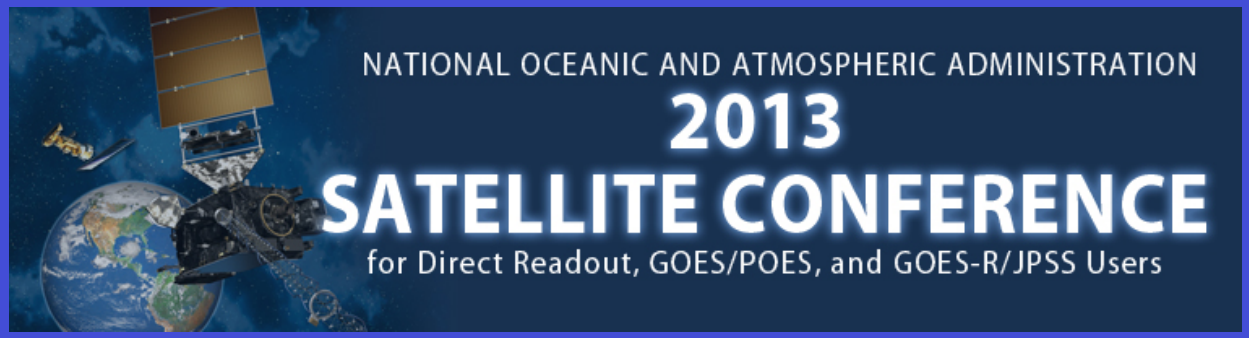
- GOES-R is the next generation weather satellite program for the western hemisphere and is a follow on to GOES I-P. Similarly, Meteosat Third Generation (MTG), is a continuation of the successful Meteosat Second Generation (MSG) program.
  - Image Navigation and Registration (INR) methods used by the two satellite systems will be discussed.





NSC-2013 Poster Plan (Final) (NCWCP atrium)





Poster Preview

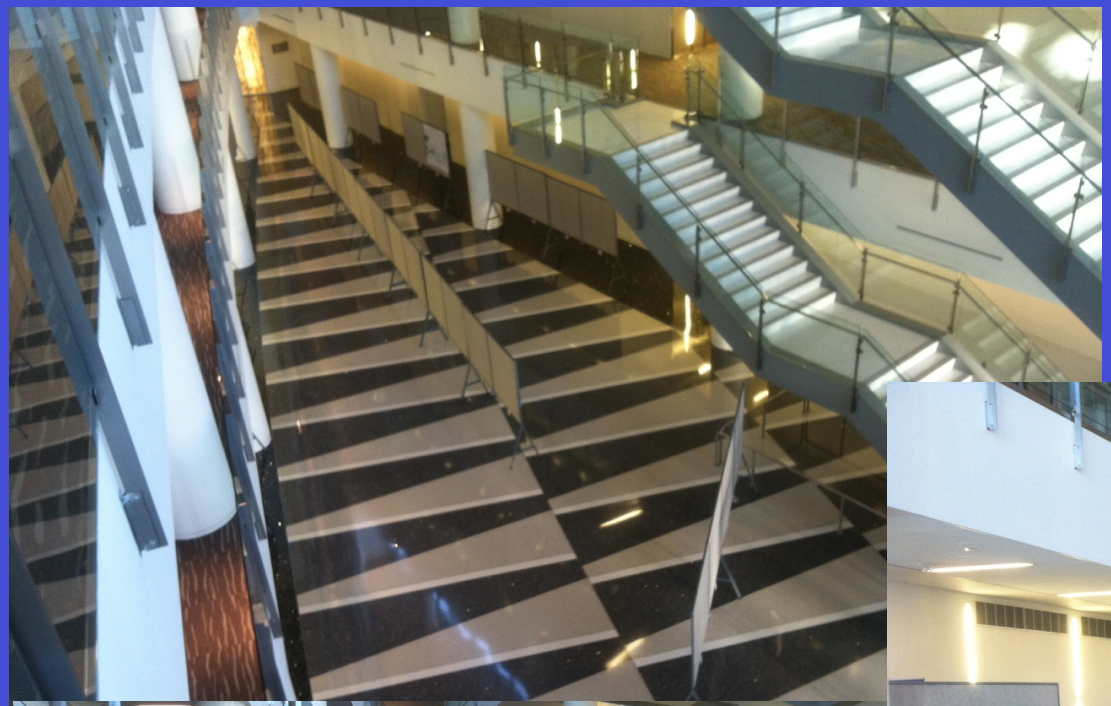
Thanks to all the poster presenters!

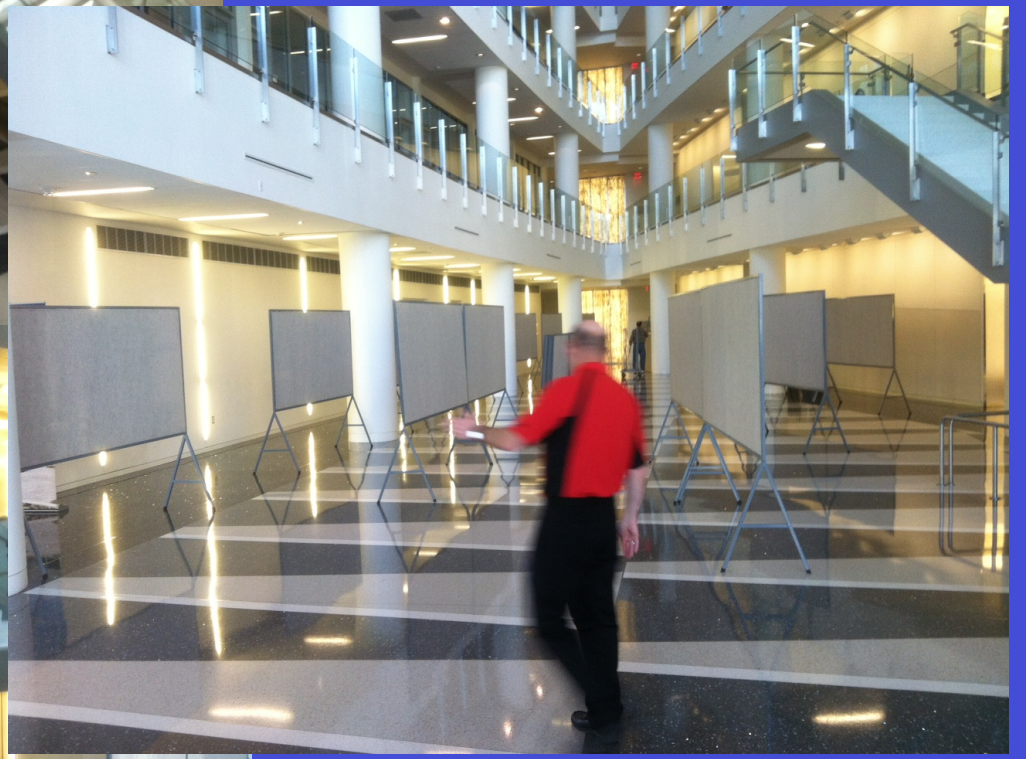
Note the large range of activities!

Thanks to the whole poster committee!

2013 NOAA Satellite Conference
College Park, MD

April 9, 2013





Photos by Tom Renkevens